THE BUILDER

Incorporating ARCHITECTURE & THE BRITISH ARCHITECT

THE BUILDER HOUSE, CATHERINE STREET, ALDWYCH, LONDON, WC2

Telephones: Temple Bar 6251-2-3-4

Vol. clxxxix November 18, 1955 *No.* 5883

PRINCIPAL CONTENTS

ARTICLES

	PAGE
SAVING THE "BACK - TO - BACK": By G. Grenfell Baines	854
LOWER - COST HOUSING, CANTERBURY: MoHLG Exhibit at the Building Exhibition ...	856
RETENTION MONEYS: American Proposal to Reduce Percentages	861
CORRESPONDENCE	866
MISUSE OF WORD "ARCHITECT": ARCUK Prosecution...	866
BUILDING EXHIBITION: Opening Ceremony	868
Diary of Events	882
Review of Exhibits	883
RICS: QS Dinner	869
ARCHITECTS' AND QS FEES: Midlands Dispute	870
LCC REFUSED PLANNING APPLICATION	870
TOWN PLANNING INSTITUTE: Presidential Address ...	871
TOMORROW'S BUILDERS: LMBA Training Scheme... ...	872
BUILDING EDUCATION: LMBA Conference	873
BUILDING WAGES: By a Labour Correspondent	874
IN PARLIAMENT	875
PLUMBERS' WORK	877
LAW REPORT	878
SLUM CLEARANCE: Local Authorities' Plans	878
CLIMBING CRANES: Economies in Construction of Tall Buildings	879
RECENT BRITISH TRADE-MARKS	882
MECHANICAL EQUIPMENT AND POWER TOOLS: By E. U. Broadbent	893
NEW USES FOR FLY ASH ...	895
DISTORTED CHIMNEYS ...	895
MoW LECTURES, DECEMBER	895
PRICES CURRENT	896
RATES OF WAGES	899
BUILDING ABROAD: Trade Opportunities	902
OVERSEAS BUILDING	902
SCOTTISH BUILDER	903
FUTURE CONSTRUCTION ...	904

ILLUSTRATIONS

BUNGALOW AT CHIGWELL ROW: By Tooley and Foster ...	857
COMPETITION: House for a Professional Man: Winning Designs	858
CHURCH, PEACEHAVEN: By L. Keir Hett	863
NEW POST OFFICE, GLASGOW: By S. Sim	864

NEWS SUMMARY

LEEDS CORPORATION'S scheme to show what can be done to give a new lease of life to the better type of back-to-back housing is described by Mr. G. Grenfell Baines. p. 854

A GROUP of American construction industry executives have studied the problems of frozen credit resulting from retention moneys, and have produced proposals whereby percentages might be reduced. p. 861

THE LMBA's NEW SCHEME whereby Public and Grammar School boys may become articled pupils in the building industry in the same way as in the professions is described. p. 872

SIR DAVID ECCLES, Minister of Education, opening the LMBA's conference on Building Education, said that the Government was constantly being accused of taking off building licensing too soon. But until the building industry was put on its own to do as much as it could the incentive to adopt new methods was, in his opinion, simply not there. p. 873

THE POSTMASTER GENERAL has announced a scheme for spending £27m. *in the next three years on telephone and postal buildings.* p. 876

CLIMBING CRANES are particularly suitable for buildings of 10 *to* 20 *storeys which are compact on plan, states a special article.* p. 879

THE PLACE OF MECHANICAL EQUIPMENT and power tools in the modern contractor's business is the subject of a special article. p. 893

TRAINING THE BUILDER

ENTRY into the management and executive side of the building trade has been largely a matter of chance. When building was primarily a craft industry, a situation which was general until about 30 years ago, supervisory and administrative staff were almost inevitably recruited from the craft side of the trade, or son would follow father. The increasing complication of building now demands a new kind of mind, a mind well versed in the building processes, but also capable of coping with large-scale organisation of the process of assembly which, under conditions by which the greater part of the various trades which must be brought together to form a building are not, in fact, executed by the general contractor, now constitutes a primary function of a builder's job.

The industry has been slow to recognise this need and slower still to blaze a trail by which young men of high mental ability can enter its ranks. Individual firms have taken in young entrants, and opportunities to gain practical experience while qualifying for the Institute of Builders' examinations have been afforded, and some of these men now hold positions of responsibility. All has been done, nevertheless, on the basis of individual approach, and the industry has been unable to advertise its need for the reason that there has been no publicly recognised road to becoming a builder, though this is not to deny that the regional offices of the National Federation have done much good work in individual cases.

Codification of recruiting methods still awaits national application, but an important step which may well lead to this has been taken by the London Master Builders' Association which, with the establishment of the articled pupil scheme outlined on another page, is now able to offer young men seeking to enter the industry in London three ways of doing so—first by serving a five-year craft apprenticeship; second, by becoming indentured students; and third, through articled pupilship. A Board of Administration, with Mr. L. J. Holloway as chairman, has been set up which will both help to place young entrants with suitable firms and watch and guide their progress. Boys from the public and grammar schools may now become articled pupils in the building industry in the same way as in the professions, and the father who asks the question: "How can my boy become a builder?" gets an answer. Loose ends are thus gathered up, and the results are found in a booklet "Tomorrow's Builder: Training for Management," published last week by the LMBA.

There are yet some questions to be settled. One is how best can this scheme be got over to the public. The LMBA is in touch with the Careers Masters of the public schools, and much can be done through the BBC and daily newspapers, if such can be interested. Another problem outstanding is one which the LMBA itself must clear up—the establishment of a generally accepted minimum scale of remuneration during training. At present, firms accepting pupils vary very considerably in their payments and no general scale is recognised. This seems important if the overall quality of the London firms is to be raised, and not only those which have the will and the money to pay salaries in line with other industrial undertakings. Subject to this reservation the LMBA must be congratulated on its vision and enterprise.

Notes of the Week

FRANK YERBURY

NOW and again a man will completely refute the Psalmists' dismal meditations on the subject of three-score years and ten. Such a one is F. R. Yerbury, who celebrates a youthful seventy tomorrow. Into those years he has packed enough activities for half-a-dozen men—as secretary of the AA, author, editorial consultant, photographer, lecturer, co-founder and managing director of the Building Centre, and architectural ambassador to the world at large. Those who remember him about half-a-century ago as the young, obliging and energetic assistant to D. G. Driver, at the old premises of the AA in Tufton-street, detect astonishingly little change in him physically, and none at all in those qualities of heart and mind — unfailing geniality and good temper, a lively wit and a constant readiness to help others—that have won him a host of friends at home and abroad. Seventy not out is a good score and we confidently expect many more runs. "FR" has lived a full life and, we should say, thoroughly enjoyed it. We heartily congratulate him on a notable anniversary and join with his multitudes of friends in wishing him many more years of happy and productive activity.

MoW CHANGES

MR. EDWARD F. MUIR, CB, has been appointed to succeed Sir Harold Emmerson as Permanent Secretary to the Ministry of Works. Sir Harold has been made Permanent Secretary to the Ministry of Labour and National Service and will take up the post on the retirement of Sir Godfrey Ince in January.

Sir Harold Emmerson will be greatly missed by the building industry. For nearly 10 years, most difficult ones for building, he has exerted a considerable and personal steadying influence which has been appreciated by all sides of the trade. His translation to the Labour Ministry will fortunately mean that he will by no means sever all connection with building. We wish him happiness and continued success.

Mr. Muir, who has been Deputy Secretary since 1954, is 50. He has had previous experience at Works, for he was Under Secretary there from 1946 to 1951. He, too, is well liked and respected for long-headedness, and his appointment, on which we offer our sincere congratulations, will be well received.

HARD LINES IN RUSSIA

THE ARCHITECT'S LIFE in Russia is a hard one. Two of the leading Soviet practitioners, Mr. Alexander Vlasov and Mr. A. M. Chechulin, have been dismissed, and two others, Messrs. Polykov and Boretsky, have been deprived of their Stalin prize laureateships. Their crime, as reported to the Council of Ministers in Moscow on November 9, has been "extravagance in building ornamentation, wasting of funds and disregard of the needs of the people." Mr. Vlasov was in New York as member of a delegation studying housing, when the news was announced.

In this the hand of Mr. Krushchev can be seen. It is just a year ago that he exploded a minor atomic bomb at the Moscow Building Conference when he called a number of distinguished architects over the coals, for "creating for themselves thoroughly man-made monuments in the shape of buildings put up to individual designs." A number of architects then present were named and publicly criticised, including the distinguished President of the USSR Academy of Architecture, A. G. Mordvinov, who was roundly told that he was "quite in the swim as regards excesses in architectural decoration on buildings." The cost of exterior decoration on many blocks of flats, Mr.

COVENTRY CATHEDRAL: Seen above is a recent view of the foundation work for Mr. Basil Spence's cathedral. At the top of the photograph, from left to right, are the central duct for heating and electrical services, and the main beam which supports the nave floor between the duct and the west wall. In the centre, from left to right, are the base of the circular Guild Chapel, the walls of the boiler house and the choir practice and robing rooms. In the left foreground the north retaining wall of the cathedral is under construction. The contract for these works is being carried out by John Laing and Son, Ltd., by whose permission the photograph is shown. The Bishop of Coventry, Dr. Neville Gorton, stated on November 12 that the first stage of the building of the cathedral should be finished next May. During the last four or five months the whole of a hillside had been carved out, he said, and a network of piles driven to form the undercarriage of the cathedral and the basis of the floor. By May this would be completed and the main wall of the west end would be brought up to above floor level. The work on the main buildings of the walls would then go ahead. In the meantime the windows were being completed. A new technique of incising glass with acid had been developed for the great west window. One of the great problems was Graham Sutherland's tapestry, "The Lord in Glory." Dr. Gorton said the immense technical difficulty was how to embody the picture in tapestry so that it would be seen at a distance of 100 yards and still maintain the quality of the picture as the viewer approached nearer to it.

Krushchev then said, was 15, 20 or even 30 per cent. of the total cost of the building.

"FLASHY ORNAMENTATION"

THE OFFICIAL STATEMENT announcing the reprimands complains of "flashy ornamentation" carried out to the detriment of internal planning and equipment of buildings. "Tower-like superstructures, numerous ornamental colonnades, and other architectural superfluities taken from the days of old have become mass phenomena in the construction of dwellings and public buildings, and as a result large Government funds have been overexpended in recent years," it adds. Features which must now be regarded as "out" in USSR housing include the silhouetting of buildings, complicated wall-reliefs, spires ("for which some architects have a mania"), columned porticos and "showily decorated façades."

Russia is obviously the place for those British architects who clamour for criticism and more criticism. Seriously, however, it is clear that Russia is turning more towards standardisation of designs and prefabrication, in an attempt to get more from the sums spent on building. It is worth a passing thought that we in this country are passing through the same phase, and already the revolt against design more akin to structural engineering than architecture has begun. If Russia follows suit, her architects may before very long be in trouble again!

RIBA MEMBERSHIP

STILL THE RIBA GROWS. Total membership (according to the 1955-56 Kalendar, just issued from 66, Portland-place, London, W1, price 10/-) is now 22,925 compared with 22,061 last year, an increase of 864. The various classes of membership compare as follows (last year's figures in parentheses): Hon. Fellows 23 (21); Hon. Associates 91 (90); Hon. Corresponding Members 105 (116); Fellows 2,070 (2,054); Associates 12,516 (11,671); Licentiates 2,473 (2,552); Retired Members 492 (491); Students 5,149 (5,060); Subscribers remain the same at 6. The most notable changes, it will be seen, are the increases of the Fellows by 16, of the Associates by 845, of the Students by 89, and the decrease of the Licentiates by 79.

ALUMINIUM IN BUILDING

THIS exhibition, opened on November 8 by the Parliamentary Secretary of the Ministry of Works at the Building Centre (where it continues until the end of the month), has been staged by the Aluminium Development Association. As such, it may be taken as an authoritative refresher on current practice, as well as on future trends, writes Basil Marriott.

Dealing particularly with post-war applications, it is described as a "challenge" to architects and designers. One would have said, more simply and naturally, that the industry would obviously like to see more aluminium used; and that architects, equally simply and naturally, would like more opportunity to use it and, indeed, other materials offering specific and demonstrable advantages. Advice and research therefore seem better selling-points than challenges.

Fortunately, in the event, the exhibition adopts these preferable means of "making something of it," and is particularly helpful in indicating progress in the fields of curtain walling including glazing, and cladding where both extrusions and sheet of various forms and finish are used. Aluminium's claims also seem well substantiated in some acoustic lining and ceiling systems, specially where controlled panel heating is incorporated. Not least, those who find the material basically rather unprepossessing in appearance will welcome the progress made with hard anodic and other finishes.

I did however feel that in some applications the material has still to establish itself as one in its own right, by the evolution of techniques only possible by reason of its unquestionable qualities and properties. As so often happens with our now middle-ageing "new" materials, time still seems being lost (and even some goodwill alienated) by seeking to prove that "anything you can do, we can do better." I was, for instance, surprised to see an exhibit devoted to traditional sheet-roofing technique very familiar from pre-war Copper Development Association days, and wondered what the comparative advantages were, cost apart.

But for a material so far lacking the background of, say, copper or lead, aluminium has come a long way. This forward-looking exhibition suggests that it will travel even further.

NATIONAL BUILDINGS RECORD

FROM ITS NEW PREMISES at 31, Chesterterrace, Regent's Park, NW1, comes the fourteenth annual report of the National Buildings Record. From this it is good to learn that the organisation is to continue to receive support from the Treasury as an autonomous body, and that the idea of merging it into the Ministry of Works has been dropped, at least for the present. The NBR continues to make steady progress in recording our fine old buildings. The accessions during the year comprised 17,744 photographs and measured drawings, making a total of 443,566 items in the collection on April 12, 1955. Unhappily the destruction of great houses still continues. Photographs of eight that have lately been, or are about to be, demolished are reproduced in the report, including Bowood, Wilts; Aberglasney, Carmarthen; Watnall Hall, Notts; and Eggington Hall, Derby.

COMING EVENTS

MONDAY, NOVEMBER 21.

BRIXTON SCHOOL OF BUILDING.—Senior school's annual prize-giving distribution, by Mr. C. H. Aslin, CBE, president, RIBA. Henry Jarvis Hall, 66, Portland-place, W1. 7 p.m.

TUESDAY, NOVEMBER 22.

INCORPORATED INSTITUTE OF BRITISH DECORATORS AND INTERIOR DESIGNERS.—"The Symbolism of Colour," by Mr. Graham Webster, MA, FSA, AMICE. The College of Preceptors, 2, Bloomsbury-square, WC2. 6.30 p.m.

WEDNESDAY, NOVEMBER 23.

ROYAL SOCIETY OF ARTS.—"Research in Industry," by Mr. B. K. Blount, MA, Deputy-Secretary, DSIR. John Adam-street, Adelphi, WC2. 2.30 p.m.

INSTITUTE OF FUEL.—"Modern Industrial Dust Collection," by Mr. C. J. Stairmand. Institution of Civil Engineers, Great George-street, SW1. 5.30 p.m.

INSTITUTE OF QUANTITY SURVEYORS (East Anglian Branch).—"Some Recent Developments on the Building Contract," by Mr. Michael Chavasse, BA, Barrister-at-Law. Assembly House, Norwich. 7.30 p.m.

THURSDAY, NOVEMBER 24.

INSTITUTION OF STRUCTURAL ENGINEERS.—Discussion on the Report of the Ad Hoc Committee on Structural Safety. 11, Upper Belgrave-street, SW1. 6 p.m.

FRIDAY, NOVEMBER 25.

INSTITUTION OF MECHANICAL ENGINEERS.—"Mechanised Welding in the Aero-Engine Industry," by Mr. F. G. Sandiford, MIME, 1, Birdcage-walk, Westminster, SW1. 5.30 p.m.

S. AFRICAN QUANTITY SURVEYOR

MR. CARL BORCKENHAGEN has decided to relinquish the post of Director of Imports and Exports to the Government of the Union of South Africa which he has held since 1949, writes a South African correspondent. Mr. Borckenhagen, who has made an outstanding success of this work, is a quantity surveyor by profession, being partner, with his wife, Mrs. Peggy Borckenhagen, and Mr. T. Louw, in the firm of Borckenhagen and Louw, of Pretoria and Johannesburg, in which he may once more take up an active part. Mrs. Borckenhagen was recently in London for the RICS Quantity Surveyors' overseas conference.

SETTLING DISPUTES

IN RESPONSE to a number of requests, LMBA Central Area No. 1 staged a highly successful Mock Disputes Commission after their luncheon at Derry and Tom's Restaurant, Kensington, on November 9. The widespread interest in the subject could be gauged by the large attendance, over 130 members of the Area and guests from eight other Areas being present.

The building industry is justly proud of its joint negotiating machinery for the settling of disputes between employers and operatives which was set up in 1921 with the establishment of the National Joint Agreement, and which has no doubt been responsible for the fact that there has been no major dispute in the industry since 1924. Not all employers, however, are as conversant with the machinery as they should be, and this the mock commission helped to rectify. With his wide experience of the industry, Mr. A. W. Yeomans, who took the part of the commission's chairman, and who had also "written the play" for the event, ably guided the cast in their various roles, a task in which he received valuable help from Messrs. R. E. Stenning and G. W. Hogg. Mr. G. H. A. Hughes, the Association's director, painted the background to the procedure, and among others who took part in the proceedings was Mr. L. J. Bradshaw, the Central Area No. 1 chairman.

In actual disputes in the industry it is often found when a disputes commission sits that the trade union side is far better briefed than the employers, and while the prime object of the machinery is to prevent stoppages and bring about amicable settlements, it can serve no good purpose if employers, through lack of knowledge of the rules, allow good cases to go by default. The LMBA's headquarters' staff are always anxious to help employers with advice when disputes arise, and some recent experiences indicate that such help might with advantage be sought more often.

SAVING THE "BACK-TO-BACK"

Mr. Deedes Comes to Leeds

By GEORGE GRENFELL BAINES, ARIBA, AMTPI

THE Parliamentary Secretary to the Ministry of Housing and Local Government recently opened an exhibition prepared in collaboration by the Leeds City Council and the Regional Office of the Ministry of Housing and Local Government to show the citizens of Leeds what can be done through "Operation Rescue" to give a new life to their old and sound housing.

Bearing in mind the basic material of conversion—grim and neglected Victorian terraced houses—the show is impressive, but interesting and impressive as the exhibition may be, one particular aspect of it would, I imagine, be a revelation to most people, as it undoubtedly was to me; this was the section on "back-to-back" houses.

To many people "back-to-back" applied to housing can mean only one thing—slums—and that, in these days of enlightenment, can only mean clearance as soon as possible. Not so in Leeds! True, there are many thousands of back-to-back houses which are to be condemned on all counts—aged and rotten fabric, meanness of layout, desperate lack of space and services, unsuitability of location in the development plan, inadequate ventilation; one could go on, but there is no need, and indeed no argument: these must go! Even now, in the present state of acute housing shortage, many of them stand forsaken in their decay. Of the 58,100 back-to-back houses in Leeds, however, a substantial proportion, estimated at 20,000, is not only sound in construction and in good condition but adequate in space within, with gardens outside, and in many cases provided with bath and internal wc, hot water and adequate light and air. Some of these houses, which have up to five bedrooms, were built as late as 1939, but naturally nothing needs to be done to these.

The use of the back-to-back planning principle in Leeds, and indeed in most of the West Riding, seems to have been carried further and for longer than in other districts of Great Britain, and when the 1909 Housing Act was framed condemning back-to-back houses specifically as unfit for human habitation, on the initiative of Leeds it was pointed out that at the time a great amount of land had been laid out and streets provided on the back-to-back planning principle; thus in both the 1909 and 1936 Housing Acts, two exceptions were quoted to the prohibition.

(a) Tenement houses, in which the tenements were placed back-to-back, provided that these had effective ventilation of all habitable rooms in every tenement,

(b) Houses abutting on any streets of which the plans were approved by the Local Authority before 1.5.1909, in any Borough or district in which (on 3.12. 1909) any Local Act or By-laws were in force permitting the erection of back-to-back houses.

It must first be realised therefore that whatever one may know of back-to-back houses that are slums, this type of house in the West Riding, and particularly in Leeds, cannot be considered as being in the same category.

In an absorbing and full report on back-to-back (and back-to-earth!) housing in the West Riding of Yorkshire, produced by the Leeds Regional Office of the Ministry of Housing and Local Government, such houses are divided into three broad categories: type (1), too small for the installation of modern facilities and in the great majority of cases the oldest and in the poorest condition; type (2), larger houses, wider spaced in layout, quite often with gardens outside and spare space within to accommodate modern equipment, and with structures in much better condition; and type (3), practically wholly in Leeds where they were built after 1890 and which for the most part are well provided with space and equipment. Confining this article to Leeds, out of the total of 58,100 back-to-back houses, the numbers in the various categories are as follows: (1) 16,200, (2) 28,100, (3) 13,800.

Type (1) can be written off, as also the lower fringe of type (2) adjoining type (1), but the large middle section of the middle group, estimated at 20,000 by the Chief Sanitary Inspector, are capable of conversion to meet modern requirements in equipment, ventilation and space. The upper fringe of type (2) and virtually all type (3) are, as already stated, in good order, and may remain as useful habitations for many years.

WHY RETENTION?

At this point it may be asked why should retention of back-to-back housing be given any consideration at all, even supposing the fabric is sound and the spaces adequate? The simple answer is that the large numbers in existence cannot be replaced in any reasonable time by the present rate of house building, which it must be remembered the Government now proposes to slow down in an economic drive to reduce capital expenditure. The Leeds Development Plan envisages the clearance of just under half of the back-to-back houses; in 1971 there will still be 34,000 remaining, or 24 per cent. of the whole of the existing dwellings in the city. Thus it may be seen that the renovation of the 20,000 previously quoted represents 15 per cent. of the total housing. Obviously it is not right that this substantial proportion of people should be denied the amenities of civilisation—modern bathroom, indoor wc, kitchen, hot water and adequate ventilation—for so long a period. On a recent count of population in over 4,000 of these houses it was found that the average occupancy was 2.92 per house. There is no question therefore of overcrowding.

If anyone were to tell the inhabitants they were living in slums, righteous indignation would be a mild way of describing their reaction. Many of these people do not want larger houses, they are happy living where they are, which in many instances is the right place, even on the development plan where large areas are still retained for housing. They are near to their work, the day-to-day shops, pubs, cinema, etc. Proof of high morale is the way in which the people "stone" their steps and cills, keep them bright and light even in the grimiest of conditions. Though architects might shudder, many of them have spent their hard earnings on leaded light windows, though they do not own their houses.

With this social background it is now possible to examine the problem techni-

The house before conversion is seen above. Note cellar partly above street. On right is house after conversion. Ventilators inserted plus new pointing. Note how back-to-back principle is maintained, even where exposed gable would have allowed windows. Gable in this scheme used for constant-flow ventilators.

IMPROVEMENT OF No. 23 LASCELLES-TERRACE LEEDS

cally. The back-to-back principle of planning is, of course, not peculiar to the West Riding; it can be found in housing in many parts of the country, and has even been employed in luxury flats. It involves terraced housing where only one wall of the house is open to the exterior, and where the houses are one room deep; the better kind (class 2) are thus invariably double-fronted. In the worst cases there is no garden at the front, but the great majority have a small garden, and distances of between 60 ft. and 70 ft. between façades are common. Lengths of terraces vary but they are broken up to provide space for outside wc's and ash-pit. By modern standards this outdoor sanitation is undoubtedly the worst feature.

Many of the houses have cellars which owing to the slope of the ground are often partly above street level; above the cellar is the main ground floor with first floor and serviceable attic space above. Thus in terms of space they are quite large, areas of living-rooms varying from 131 sq. ft. to 182 sq. ft. and bedrooms from 134 sq. ft. to 182 sq. ft.

VENTILATION QUESTIONS

The stair well, either at the back or in the middle of the house, forms an effective up-shaft for ventilation. Adequate ventilation has been the main concern of the Public Health Department of the City of Leeds and it is largely through the work of the Medical Officer of Health, Dr. I. G. Davies, and his Chief Sanitary Inspector, Mr. James Goodfellow, assisted by the Department of Physiology of the London School of Hygiene and Tropical Medicine, that the problem of ventilation has been solved. As often happens, the solution is so simple that one wonders why it has not been thought of before; it relies on the rule that air will only move effectively when both a way in and a way out are provided. The Public Health officials followed the principle laid down in the Housing Act, 1949, that each *room*, irrespective of house type, should have satisfactory ventilation. Rate of ventilation was measured by the decay of concentration method, using CO_2. In the first experimental schemes it was discovered that with all doors and windows closed, the provision of a constant-flow type ventilator in the external wall, acting in conjunction either with open fire or louvred vents through the doors to the staircase well, which in turn ventilates to the roof space, gave ventilation to the improved back-to-back houses actually superior to that of a modern " through " type house with all doors and windows closed. When it is remembered that under present-day by-laws there is no insistence on both air inlet and outlet, one inlet only being required in rooms with no flue, it is clear that in rooms where both inlet and outlet are provided there will be a better air flow irrespective of the type of house. To comply with the rate of ventilation prescribed in Code of Practice No. 3—between 1½-2 air changes per hour—9 in. by 9 in. vents are provided in living rooms and 9 in. by 6 in. elsewhere. They are of the constant-flow type of which there are a few good-looking models on the market. It is emphasised that the vents must be good-looking as they will then be respected by tenants.

In a few instances separate upshaft flues have been provided and in many cases the flue from the old scullery copper, now replaced by a modern washboiler, has provided a valuable additional ventilation shaft.

The solution of the ventilation problem is really the key to the practicability of raising the standard of these houses to accepted levels. Provision of bath, washbasin and wc, new fireplace with back boiler to supply hot water, a hot tap over the sink in the kitchen and the pointing of walls, windows and roofs, are relatively simple measures to be carried out by standard practice. The main trade required is plumber, and when it is stated that the average improvement consisting of most of the above provisions costs less than £200, some measure of the demand on existing finance and building resources may be understood. In other words, seven of these houses can be brought up to modern standards for the cost of one new council house. All the back-to-back houses that are worthy of conversion have electric light, many of them their own electric or gas cooker. Existing drains are adequate for the new appliances and the outside wc's can be converted into cycle and store sheds. They comply or can readily be made to comply with the twelve points of fitness given in the Government Improvement Grants circular.

ECONOMICS

The economics of the position are intriguing. Taking a house with basic provisions costing £200, the Improvement Grants scheme makes a " gift " of £100. Of this the local authority can recover three-quarters by grant from the Exchequer, thus the cost of a useful house to a local authority is £25, paid *once*, as distinct from subsidies, which go on for 60 years. Of the £100 spent by the owner he can borrow the whole at rates of interest around 5 per cent.; he is allowed to increase the rent by 8 per cent. on his outlay, and can thus make money out of borrowed money. This seems common sense even to a hard-bitten Northerner.

Three classes of ownership exist: (1) Owner-occupied; this is increasing and it is significant that so far owner-occupiers have shown great enterprise in tackling the improvement schemes.

Then (2) there are normal landlord-ownerships of varying size; by far the greatest part of the housing is owned this way, as category (3), local authority-owned, is very small.

Whether or not the initiative of the owner-occupiers may be regarded as indicative of the desirability of a property-owning democracy, there might appear to be a case for ensuring the security of the better back-to-back housing and encouraging tenants to buy their houses and take the initiative in improving them.

Bug infestation is no problem. The Chief Sanitary Inspector commented rather wryly that whenever he discusses bugs with the lady in her own house, he is always told they are " her's " from next door; as a back-to-back house has three next doors, this sounds like the one man in the regiment who is not out of step! Very few walls are so defective that bugs can go through them, and in any case bugs will only move when the source of food and warmth is removed, in other words, the house is empty of humans. Lethal sprays of the benzine hexachloride and other types, which are effective for many months, can be applied after decoration without ill effect, except, of course, on the bugs! In any event the problem is not of great extent and can easily be controlled.

Most of the houses in Leeds have brick walls and slated roofs which are in sound condition, requiring only a little pointing and refixing of loose slates. The fact that they have only one external wall contributes to their good condition as compared with a semi-detached house with three external walls. They are also very warm houses where little condensation is experienced, as compared even with a modern house often heated only in one room, which heat can speedily escape through external walls.

In addition to raising the standards of back-to-back houses as they exist, two other possibilities have been considered. First, to make them into " through " houses by breaking the party walls and combining two houses. Second, by turning two houses into two through flats or maisonettes. A fundamental objection to the first scheme is that, in view of the relatively large size of existing units, any combination would make a house much too big at a rent too high for the district. Apart from this, very often the houses in one street are not in the same ownership as the adjoining property. Due to hilly sites, floors are frequently at different levels. Finally, the scheme to make through houses would displace half the population.

SOME OBJECTIONS

To make through flats or maisonettes would not permanently displace the population but temporary displacement would be inevitable, as would difficulties of different ownership and floor levels. The policy of making larger through houses or through flats can only be justified where internal space standards are much too low (usually these houses are unsound in fabric) or adequate ventilation cannot be obtained; as already explained this problem has been solved.

Of course there are snags. It cannot be claimed, for instance, that it is ideal to dry the washing across the street, though the authorities might consider provision of internal drying facilities by means of drying racks in the kitchen. Many rooms are quite high by modern standards.

Then the back-to-back type of layout causes a rigidity of orientation which condemns many to a sunless aspect. But being denied of sunlight is not a good reason for being denied some of the other amenities modern life may hold. Indeed, that is the alternative—to condemn these people to a continuing life of lower standards. With this thought goes another which may not have occurred to the officials themselves. It

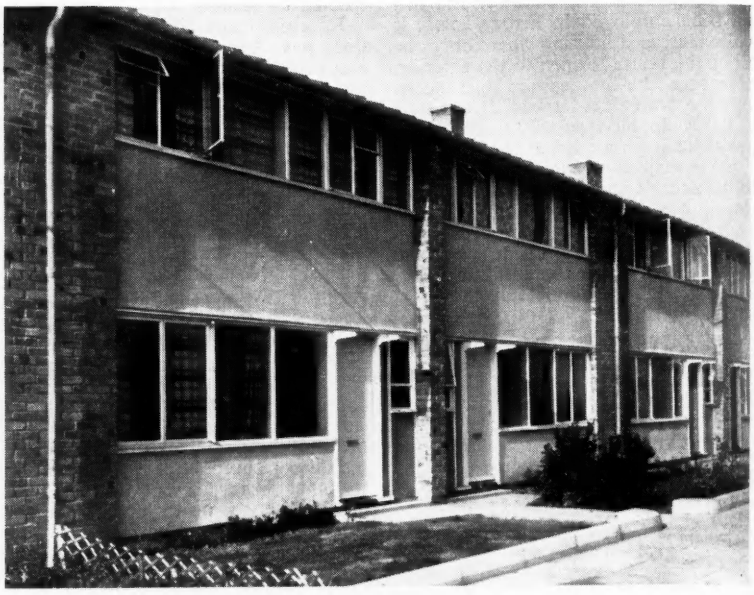
is not uncommon to hear well-meaning officials and designers complain that their bright new council houses are misused by tenants who do not appreciate their improved standards of living, who more often than not are incapable of appreciating them, having been jerked too suddenly out of one standard into another.

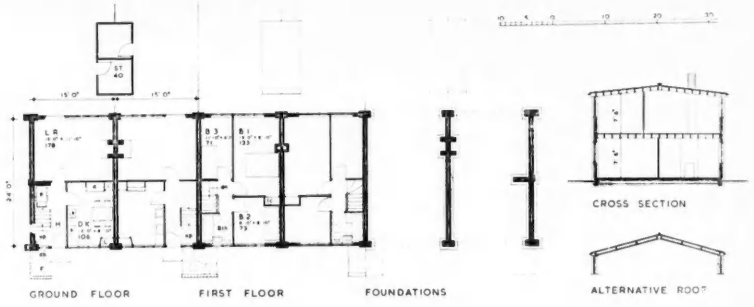
This has caused some authorities to build, or at least consider building, "transit" accommodation of special construction and location for problem families—psychologically, in my view, a completely wrong solution. The upgrading of back-to-back houses in Leeds will not only make life more worth living; it will help the people themselves, and their children, towards an enthusiastic appreciation of the better types of housing which it is hoped the combined effort of National and Local Government will continue to provide until all standards of ventilation, hygiene, equipment and, above all, layout and density will be ideal for everyone, and a fitting memorial to the effort and thought put into the Housing problem by officials, technicians and politicians alike since the end of World War 2.

It would not have been possible to write this article without the help of the Leeds Regional Office of the Ministry of Housing and Local Government and officials of the Leeds City Council. The experience once again demonstrates the value of the tremendous fund of advice and knowhow which is readily available to architects and builders in both Ministry and local authority offices.

The courage and initiative of the Leeds people may be taken as an example to other authorities who have the same problem, and although some may criticise the Government for a questionable "make do and mend" policy, no one with knowledge of housing conditions in Leeds would deny this is a sound move which having been started should be advanced quickly and on a considerable scale wherever conditions and the development plans allow.

LOWER COST HOUSING, CANTERBURY, KENT



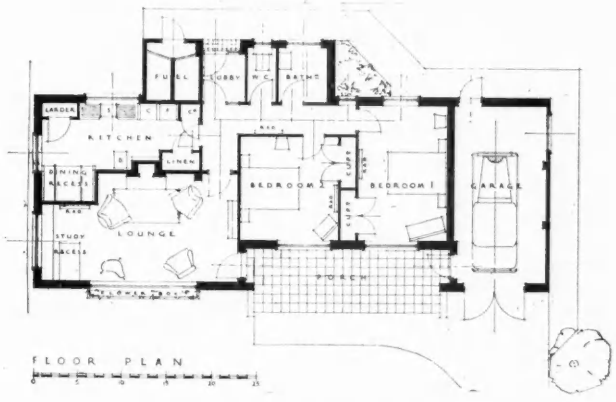


THE exhibit of the Ministry of Housing and Local Government at the Building Exhibition is principally concerned with the theme of Lower Cost Housing. The display (Gallery, Stands 453, 455) draws attention to the crosswall principle of construction, a theme developed by the Ministry's architects but adapted by a number of local authorities to their own needs, among them being Sheffield, West Ham, Birmingham, Liverpool and Canterbury. At Canterbury, two groups of houses have been erected on this system, and an average saving of £64 per house on a total of 20 dwellings has been made, it is claimed. The scheme illustrated is designed on a 15 ft. frontage. Crosswall construction aims to achieve: (1) lighter construction without loss of efficiency; (2) quicker work on the site; (3) increased use of dry systems of building; (4) co-ordination by the designer of constructional details with erection techniques; and (5) the use of factory-produced components where these show economies. In the scheme illustrated the crosswalls are of 11 in. brick cavity, the external walls being timber-framed with apron panels covered externally with felt, 1 in. woodwool slabs, wire mesh and two coats of rendering, and internally with $\frac{3}{8}$ in. plasterboard with skim coat. The Canterbury City Architect is Mr. L. Hugh Wilson, OBE, ARIBA, whose Deputy is Mr. C. W. Gummer, ARIBA. The assistant-in-charge was Mr. R. C. Pannett, ARIBA

BACK TO BACK HOUSE IMPROVEMENT—LEEDS ROOM AREAS (SQ. FT.)

Address	Basement	Ground Floor	First Floor	Second Floor (Attic)
19, Arthington Street, Hunslet, Leeds 10 Owner-Occupier: Mr. F. C.Grenfell	Cellar (120) Food Store (88) W.C.	Living Room (123) Sitting Room (131)	Bedroom (178) Bathroom (63)	(294)
13, Providence-road, Leeds 6 for Mr. W. Hepworth	Food Store (170) Coals (59)	Living Room (170) Scullery (60)	Bedroom (170) Bathroom (59)	Bedroom (134) Bedroom (119)
8, Jameson-street, Leeds	Cellar (130) Coals (58)	Living Room (143) Scullery (54)	Bedroom (134) Bathroom (60)	(153)
29, Conway-view, Leeds 8 Owner-Occupier: Mr. G. E.Hackett	Store (112) Coal (57) W.C. (shared with adjacent house)	Living Room (182) Scullery (65)	Bedroom (161) Bathroom (59)	(160)
23, Lascelles-terrace, Leeds 8 Owner-Occupier: Miss E. D. Whitehead	Cellar (168) Coal (77)	Living Room (182) Scullery (60)	Bedroom (182) Bathroom (50)	(160)
4, Jameson-street, Leeds 6	Cellar (164) Coal (55)	Living Room (160) Scullery (57)	Bedroom (155) Bathroom (58)	Bedroom (153)

Front elevation.



Plan. Below: Living-room.

BUNGALOW AT FIVE OAKS LANE, CHIGWELL ROW, ESSEX

Architects
TOOLEY & FOSTER, FF.RIBA

Assistant Architect-in-Charge
H. J. FULLER

Builders
H. BALL & Co.

THE clients in this case asked for a bungalow of compact design ; they did not want space to be given to separate rooms for dining or study, and it was agreed that this accommodation should be provided as recesses to the kitchen and lounge.

An entrance hall was not required, and the house is, therefore, entered from a lobby at the back with a subsidiary entrance directly into the lounge. The garage was to be constructed to allow for conversion into a room for a future extension.

The construction is 11-in. cavity brickwork with yellow stocks as facings except to the recessed wall to the porch, which is finished with Tyrolean dark red cement rendering. The roof is covered with cedar shingles laid to a pitch of 20 degrees. The floors generally are finished with patent asphalt tiles laid on a solid concrete base, except for the lounge, which has oak wood blocks. Central heating is provided. Total area is 1,116 ft. super.

COMPETITION FOR A HOUSE FOR A PROFESSIONAL MAN:

Winning Design, by Messrs. R. Towning Hill, AADip., ARIBA, & Partners.

COMPETITION FOR A HOUSE FOR A PROFESSIONAL MAN

Organised by Tretol, Ltd.

Clifford Culpin, FRIBA, Assessor

ENTRIES numbering 323 were received in the open competition organised by Tretol, Ltd., for a house for a professional man, and the assessor, Mr. Clifford Culpin, FRIBA, has made his award as follows:

1st (£250 prize): Messrs. R. Towning Hill, AADipl, ARIBA, and Partners, 27a, Great George-street, Bristol, 1.

2nd (£150 prize): Mr. F. A. Sargeant, DipArch, ARIBA, Templars, Terrace-road, Binfield, Berks.

3rd (£100): Mr. P. J. Lord-Smith, ARIBA, 12, Bath-road, Swindon, Wilts.

The winning and other designs are on exhibition at the Building Exhibition. The cost of the house was limited to £4,250. Messrs. Gardiner and Theobald were associated with Mr. Culpin as quantity surveyor assessors.

Assessor's Award

MR. CLIFFORD CULPIN, FRIBA, makes his assessor's award in the following terms:—

"I have carefully examined the 323 designs and accompanying reports submitted. I have had the collaboration of Messrs. Gardiner & Theobald, chartered quantity surveyors, appointed by the promoters to advise me on matters of cost.

"The majority of the designs submitted make little contribution to the promotion of better architecture in this particular sphere and in many of them the same faults recur. These faults include: inadequacy of food storage, lack or bad placing of hanging space for outdoor clothes, access to living-rooms through congested dining spaces and remoteness of parents' bedroom from children's rooms.

"Some gallant attempts to solve special problems, for instance that of the urban terrace house, have not been entirely successful.

"Many good designs, and one of outstanding merit, were ruled out on grounds of cost, and I have been governed in my decision by clause 5 (b) of the conditions which states that a design shall be excluded from the competition 'If the assessor shall determine that its probable cost will exceed by 10 per cent. the outlay stated in the instructions.'

"However, the competition has, in my opinion, been successful in that it has produced the design to which I award without hesitation the first place. It is No. 74 [Messrs. R. Towning Hill and Partners]. (Note.—A strict application of building by-laws to this design would probably necessitate introducing two additional doors to provide ventilated lobbies to wcs.) In second place I put No. 206 [F. A. Sargeant, ARIBA], and in third place No. 252 [P. J. Lord-Smith, ARIBA].

The Competition Reviewed

By ARTHUR KENYON, CBE, FRIBA

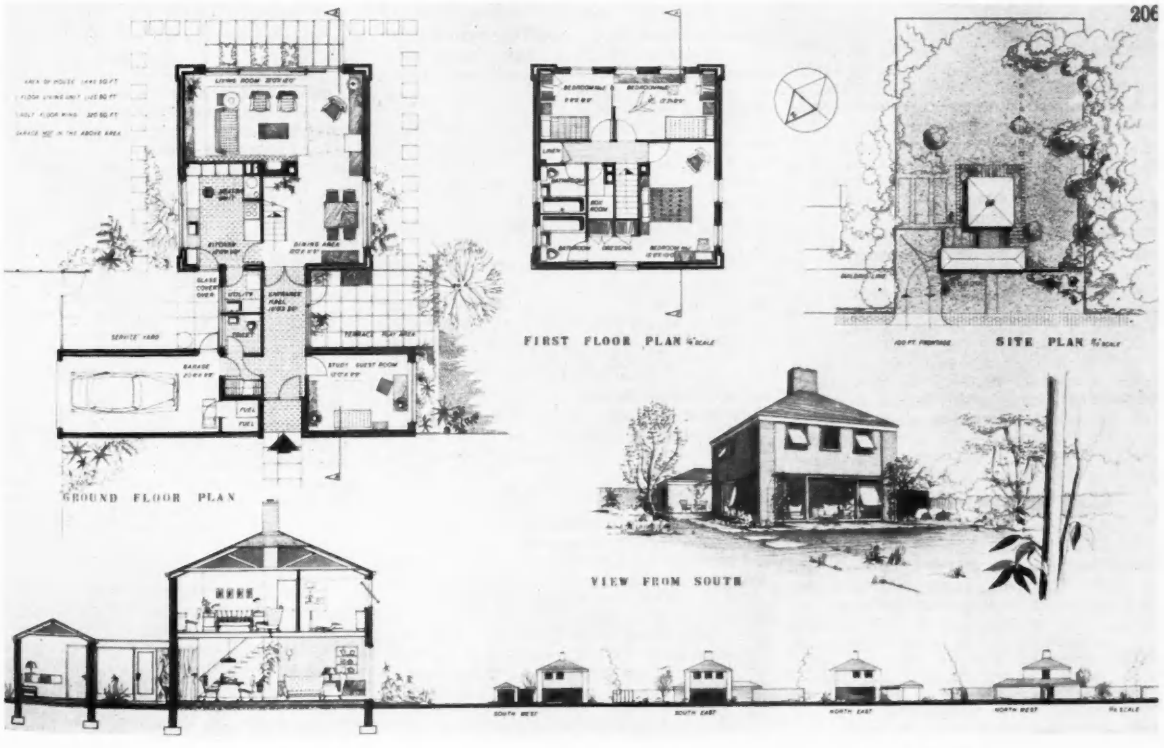
TO design a house for a client you have never seen and whose habits you do not know on a site which does not exist is no easy matter, but all the same a competition for such a house, sponsored by Messrs. Tretol, Ltd., attracted no less than 323 entries. The house was to be designed for a "professional man." Mr. Culpin, the assessor, in making his award, stated that the majority of the designs make little contribution to the promotion of better architecture in this particular sphere, but he goes on to say, however, that the competition has, in his opinion, been successful in that it has produced the design which he awards first place.

The promoters are to be congratulated in attracting so many architects to compete in a competition in which the award is only a money prize; it may be that they will be induced to build the house, in which case if it is to be successful, they will have to find a client to suit the house and a site to suit the planning.

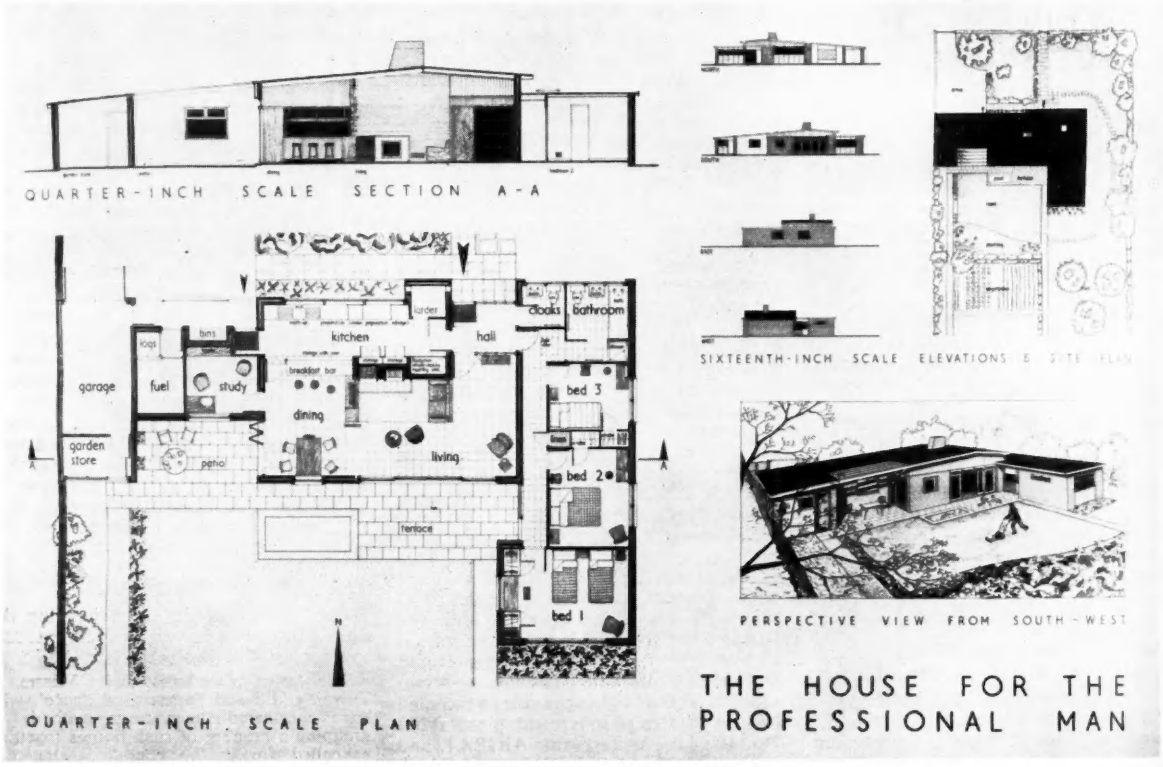
THE WINNING DESIGN

Let us look at the three winning designs to see how the competitors approached this problem.

The design placed first is by Messrs. B. Towning Hill and Partners, of Bristol, who have considered the various methods of grouping a number of such houses together, as called for in the conditions, but this again has had to be done without any site conditions. The house itself is pleasing and



COMPETITION FOR A HOUSE FOR A PROFESSIONAL MAN: Design placed Second.
By F. A. Sargeant, Dip.Arch, ARIBA.



COMPETITION FOR A HOUSE FOR A PROFESSIONAL MAN: Design placed Third.
By P. J. Lord-Smith, ARIBA.

is built on one floor; but the entrance is somewhat hidden by the garage, which is a separate building passed on the approach to the house. The plan of the house is divided about the entrance, with the bedrooms to the left and the living quarters to the right. There is only one entrance and the kitchen is approached directly from it. A corridor connects the sleeping and living quarters and opens on to an attractive courtyard laid out complete with pool.

The bedroom portion is well arranged and there are two dressing-rooms opening out of the principal room, one marked as dressing-room/study, which might be appreciated by a certain type of client; others might not think it conveniently placed, but here again, who knows? The effectiveness of the lighting of the main bedroom is doubtful, as it appears only to be lit through the dressing-rooms, which seems rather a pity. It surely cannot be that the plan has been sacrificed to the elevations, and there must, therefore, be some other reason for this. The bathroom and w.c. combined is well placed, and there is a further toilet off the entrance.

The living-room/dining-room is contained in one long room approached from the corridor in the centre of the long wall; part is arranged for living and part for dining, the latter with a large service into the kitchen. This is quite a workable arrangement for those willing to accept an *en suite* arrangement—and, after all, why not? The grand piano—a sop to the musician client—is somewhat in the way. The living portion of the room opens on to the courtyard, which gives an effect of size to the room and forms a pleasing feature. There is an open fireplace on the opposite wall. The house is heated by a centrally placed boiler. The elevations, which are drawn to 1/16-in. scale, as called for in the conditions, are so minute as to be difficult to judge, but they might be quite pleasant. There is a flat roof over the whole building and the walls generally are in brick. The kitchen and bathroom, both of which face the entrance, have high windows. The cost of 1,200 sq. ft. is given as £4,250.

THE SECOND AWARD

The design placed second is by F. A. Sargeant, of Binfield. It is a two-storey house, not so pleasing in design, and in the grouping as shown it could be somewhat uninteresting. The living-room, dining-room and kitchen are in a square block, with the staircase to the upper floor opening out of the dining-room. The entrance hall is long and narrow and it is not particularly inviting; entered from this hall is a study-cum-guest's bedroom. It is, undoubtedly, a pleasing feature to have a separate wing for guests, but it must be accompanied by bath, etc., to be really workable. The bedroom floor consists of three bedrooms, dressing-room with bathroom attached, and a separate bathroom and w.c. for the other two rooms. The heating boiler is centrally placed. The fuel stores are out of the garage, which would be rather a haul to the living-room fire. The area of this house is given as 1,445 sq. ft. and the cost as £2 15s. a foot, making a total cost of £3,934.

THE THIRD AWARD

The third premium goes to P. J. Lord-Smith, of Swindon, Wilts. This again is a single-storey building, and the design has been aggravated by an aimless long sloping pitch over one portion of the plan, making an unpleasant intersection with the flat portion over the rest of the house. There are two entrances to this house, the competitor having apparently realised the necessity for storing such unsightly things as dustbins, etc. The garage is attached to the house. Leading from the entrance hall is the bedroom wing containing three bedrooms, bath, w.c. and shower, and there is a cloakroom in the hall. The living-room is approached direct from the hall and the dining-room forms part of this room, being partially screened off. There is a service from this room directly into the kitchen. The kitchen is 18 ft. long and narrow, with fittings along one side, and there is an excellent view of the sink from the dining recess. There are sliding windows in the living-room/dining-room, and there is access from the dining-room to a small "patio," which seems somewhat purposeless. There is an open fireplace in the living-room on the wall opposite to the window. The cost of this scheme is worked out at £4,245, being 1,415 sq. ft. at £3 a foot.

All these three designs show the desire for open planning in the living quarters, with the kitchen brought into the rest of the house. After all, the preparing and eating of food does play a big part in the daily life and the housewife, who is destined to do all the chores with occasional help from the family, is no longer to be relegated to an isolated kitchen. The work attached to the open fire, however, is a chore to which no one seems to object, and we are apparently prepared to accept the drudgery which it entails.

RETENTION MONEYS

American Proposal to Reduce Percentages

IN March of this year, a group of American construction industry executives met in New York to study the problems of frozen credit resulting from the practice of retaining part of the monthly payments due to contractors for completed work on a construction project. After full deliberation, the conference agreed that while a reasonable retention of a percentage of the payment due to contractors for executed work was necessary to protect building owners, under present practices excessive amounts were often retained; the freeing of funds not actually needed for the owner's protection would benefit all segments of the building industry and encourage increased construction at lower costs.

The following amendment to Article 4 *of the AIA (American Institute of Architects) Form of Contract A-*1 *was suggested:* "On or about the . . . . . day of each month . . . 90 . . . per cent. of the value, based on the contract prices, of labour and materials incorporated in the work and of materials suitably stored at the site thereof up to the . . . . . day of that month, as estimated by the Architect, less the aggregate of previous payments, *until such value amounts to* 75 *per cent. of the contract price; thereafter the retained percentage shall be reduced to* 5 *per cent. on portions of the work more than* 75 *per cent. complete, retaining* 10 *per cent. on portions not* 75 *per cent. complete.*"

The conference was convened at the request of the Producers' Council and National Association of Credit Men, and reaches us through the courtesy of Sir Alfred Bossom, Bt., MP, FRIBA. The conference adopted a statement, based upon recommendations made by Mr. W. S. Parker, FAIA, and Mr. Faneuil Adams, LLB, consultants to the conference, from which we take the following extracts:

A Suggested Procedure

THE FOLLOWING PROCEDURE is suggested for consideration by the various national organisations of architects, engineers, contractors, sub-contractors, suppliers, surety groups and other interested organisations as a desirable standard that will provide adequate protection to the owner and reduce the financial burden on the other elements in the industry. This procedure is intended to apply primarily to lump sum contracts for private work, whether bonded or not. It is designed to conform to the requirements of the AIA Standard General Conditions. It recognises that the interests of owners, contractors, sub-contractors and suppliers are all involved in the provisions governing the applications and certificates for progress payments under a general contract.

This procedure holds that, under average normal conditions, a retention of 10 per cent. on payments is reasonable during the early stages of the work, but that when the work approaches substantial completion, such a retention becomes unnecessarily burdensome, and that it can properly be reduced to 5 per cent. after the entire work is 75 per cent. complete, on those divisions of the work which are themselves 75 per cent. complete. It recognises that this adds an element of complication in the application form for subsequent payments in order to show the retentions on the different divisions of the work, some being at 5 per cent. and some at 10 per cent. No such complications, however, are present during the first three-quarters of the work, or after all divisions of the work are at least 75 per cent. complete.

The conference does not propose the setting up of a rigid procedure. This report aims merely to suggest a reasonable procedure that will give adequate protection to the owner and as much financial relief to contractors, sub-contractors and suppliers as such protection can reasonably afford. Nothing in this procedure should be interpreted as conflicting with other procedures which permit lower retained percentages which are considered adequate protection to the owner.

CONSIDERATIONS INVOLVED

The purpose of this study is to determine what retained percentage on progress payments for a construction project will provide adequate protection for the owner without undue financial hardship on the contractor, sub-contractors, and suppliers. No such study by a group broadly representative of the construction industry is known to have been made heretofore.

The standard owner-contractor agreement form (AIA Form A-1) has always provided a blank in which the architect would insert the percentage to be retained at each payment. No standard percentage has ever been indicated. Fifty years ago 15 per cent. was customary. Since then it has gradually become the custom to reduce the percentage in different ways. Many contracts now customarily use 10 per cent. Much government work is now based on retaining 10 per cent. until the work is half done, accumulating a retention of 5 per cent. of the total contract price, thereafter paying 100 per cent. of the value of subsequent work. Many contracts still retain 15 per cent.

If it were necessary to consider only the general contractor, the answer would be relatively simple, but since more than half the contract is generally performed by sub-contractors it is necessary to include consideration of how payments received by the general contractor should be passed on by him to his sub-contractors, as well as for materials and labour. Several Articles of the Standard General Conditions involve that process.

Article 37 provides in (*e*) that the sub-contractor shall be paid the amount allowed to the contractor on his account, if certificates are based on a schedule of values. Under (*f*) the sub-contractor is otherwise entitled to receive the same proportion of the value of his work that the general contractor is paid for his work. The architect is involved by the provision in Article 36 that requires him, on request, to "furnish to any sub-contractor, wherever practicable, evidence of the amounts certified on his account." This would be "practicable" for all major sub-contractors whose work would be listed in the schedule provided for in Article 24, the purpose of which is "to facilitate payments to sub-contractors in accordance with Article 37 (*e*)."

It is desirable to focus consideration on lump-sum contracts. Contracts on a cost basis generally pay 100 per cent. of the work done from month to month, and generally with a proportionate payment of the profit item, whether that is a percentage of the cost or a lump sum; such work, therefore, is not involved in this study. It is focused also primarily on private work but is applicable equally to public work let on a lump sum basis so far as the authorities may permit. It is also pertinent to bonded contracts as well as work not involving a bond guaranteeing performance and payment for labour and materials.

It seems to be generally agreed though not unanimously, that retaining 10 per cent. throughout the contract results in the retention of an excessive amount during the last quarter of the construction period and that a retention of 5 per cent. of the total contract after the work is 50 per cent. complete, as in certain Federal work, is adequate. The effect of this procedure on progress payments to sub-contractors is confusing, as the relation of this fixed amount to the constantly varying amounts of work performed on the job as a whole and on the various sub-contracts is indefinite. A procedure seems necessary that will apply the retention equally to all sub-divisions of the work, the amount properly due to the various sub-trades being clearly indicated on the application form submitted by the general contractor with each requisition.

The following procedure is submitted for consideration, viz., *To retain* 10 *per cent. on payments until the work is* 75 *per cent. complete, thereafter to retain* 5 *per cent. on all portions of the work that are themselves at least* 75 *per cent. complete, retaining* 10 *per cent. on portions less than* 75 *per cent. complete.*

It is obvious that this procedure will add a certain complication in making out applications for payment, as normally based on a breakdown of the contract into its principal sub-divisions, but it will be seen that this is likely to be unimportant. A form of application is submitted to indicate the suggested procedure applied to the actual application for a school building at the time when 75 per cent. completion had been reached. This was at the time of the seventh monthly application. The breakdown of the contract and the statement of the value of work done and the amounts previously paid are copied from the contractor's application as submitted; the additional columns and their order are devised to suit the proposed procedure.

It will be seen that there were nine divisions of the work still less than 75 per cent. complete, on which 10 per cent. is to be retained. On the following two applications only one such division remained. Thus this complication would have affected

only three applications, all the others would have involved uniformly a 10 per cent. retention before and a 5 per cent. after the period of these three applications. The form shows all the facts needed in an application and produces in the right-hand column the detailed amounts and the total payable.

It is of interest to note that on this basis the total amount to be retained on the application is $19,550, compared to the 15 per cent. that was actually retained on the contract, which amounted to $48,078.

It is of interest to note that the government procedure, reducing the retention after the work is 50 per cent. complete, would have affected in this case only one previous application and that this procedure is substantially equivalent to the government procedure after 75 per cent. completion. The application form submitted shows as noted above a total retained of $19,550. The Government retention of 5 per cent. of the contract would be $19,324.

This report does not aim to set up a rigid procedure. It aims merely to suggest a procedure that seems to provide adequate protection to the owner and as much financial relief to contractors, sub-contractors and suppliers as such protection can reasonably afford. There will always remain the problem of preventing so far as possible the extreme cases of hardship that result when everybody on the job suffers long delay in final payment due to the neglect or error of a few. That problem is outside the field of this study.

Draft of Provision Regarding Payments

A suggested amendment to Article 4 of AIA Form A-1

Article 4. *Progress Payments.* The owners shall make payments on account of the contract as provided therein, as follows:

On or about the . . . . . day of each month . . . 90 . . . per cent. of the value, based on the contract prices, of labour and materials incorporated in the work and of materials suitably stored at the site thereof up to the . . . . . day of that month, as estimated by the Architect, less the aggregate of previous payments, until such value amounts to 75 per cent. of the contract price; thereafter the retained percentage shall be reduced to 5 per cent. on portions of the work more than 75 per cent. complete, retaining 10 per cent. on portions not 75 per cent. complete.

All payments are on account of the contract price and do not constitute acceptance of any specific portions of the work. Full payment of the retained percentage on a portion of the work satisfactorily completed prior to the completion of the entire work may be made subject to the approval of the Architect upon submission of evidence that all payrolls, material bills, and other indebtedness connected with the work have been paid, and, if required, the submission of a written guarantee or bond covering correction of defects that may later be discovered in the materials or labour or operating requirements as required by the contract.

NOTE.—The *italicised* first portion is quoted from the Standard Agreement Form. The remainder of the printed clause may be crossed out and the balance of this provision typed in the blank space provided.

SAMPLE APPLICATION

.....Architects

100 Beacon Street, Boston, Mass.
Application for Payment

Job.....(a school)..... Date: September 1, 1954

Division of Contract (Including Additions and Deductions to Date)		Value of Work Done		Amount Retained		Total Amount Payable	Amount Previously Paid	Amount Now Due
		Previous Statement	This Statement *	Per cent	Amount			
Excavation and Filling	23,377	23,377	23,377	5	1,168	22,209	19,870	2,339
Foundation	60,097	58,795	59,259	5	2,962	56,297	49,975	6,322
Waterproofing ...	1,485	1,225	1,355	5	67	1,288	1,041	247
Drains	4,084	3,674	3,674	5	183	3,491	3,122	369
Brickwork	53,208	51,533	51,683	5	2,584	49,099	43,803	5,296
Stonework	225	225	225	5	11	214	191	23
Marble, Slate, Terrazzo	3,346	—	3,300	5	185	3,115	—	3,115
Structural Metal Work	11,736	11,736	11,736	5	586	11,150	9,975	1,175
Light Iron Work ...	4,387	4,387	4,387	5	219	4,168	3,728	440
Roof and Metal Work	8,553	8,500	8,500	5	425	8,075	7,225	850
Carpentry (Rough) ...	11,814	9,270	11,514	5	575	10,937	7,879	3,058
Carpentry (Finish) ...	29,195	14,985	23,248	5	1,162	22,086	12,737	9,349
Plastering	3,848	1,800	3,848	5	192	3,656	1,530	2,126
Hardware	3,671	—	1,000	10	100	900	—	900
Painting	4,789	1,315	3,270	10	327	2,943	1,117	1,826
Glazing	2,268	1,473	1,473	10	147	1,326	1,252	74
Linoleum and Asphalt Tile	3,339	—	2,120	10	212	1,908	—	1,908
Plumbing	19,170	11,500	13,264	10	1,326	11,938	9,775	2,163
Electric Work ...	24,376	12,614	18,114	10	1,811	16,303	10,722	5,581
Heating and Ventilating	45,271	36,600	41,100	5	2,055	39,045	31,110	7,935
Miscellaneous ...	1,322	1,195	1,195	5	59	1,136	1,016	120
Site Development ...	19,594	10,503	11,412	10	1,141	10,271	8,927	1,344
Field House Addition	23,620	10,070	17,483	10	1,748	15,735	8,559	7,176
Kitchen Equipment ...	13,615	—	2,136	10	213	1,923	—	1,923
Lockers	5,295	—	—	—	—	—	—	—
Venetian Blinds ...	1,136	—	—	—	—	—	—	—
Metal Cabinets ...	2,408	1,850	1,850	5	92	1,758	1,573	185
Heating, Roman House	1,241	—	—	—	—	—	—	—
Totals	386,476	276,628	320,525		19,550	300,975	235,134	65,841

* Includes previous statement.
† 5 per cent on portions more than 75 per cent complete, otherwise 10 per cent.

The above statement represents the value of labour and materials incorporated in the building, and we ask for payment of the amount shown due $65,841

..... Contractors

AA SCHOOL OF ARCHITECTURE

Entrance Examinations and Scholarships, 1956

THE Architectural Association's School of Architecture have issued details of the School's entrance examinations and scholarships tenable at the School during 1956.

Entrance examinations for admission to the first year will be held on March 12, 1956 (followed by an interview on March 13 and 14, 1956), and, subject to special conditions, on July 17, 1956 (followed by an interview on July 18). Closing dates for applications March 1, or July 1 for the second examination. All candidates, including those applying for entrance scholarships, must take the entrance examination.

Selection board for admission to years other than the first will be on April 30, 1956, followed by interviews in the afternoon and on May 1. Closing date for applications, April 1. All candidates must appear before the selection board, and must be 17 years of age or over on September 1, 1956.

ENTRANCE SCHOLARSHIPS

Entrance scholarships offered for 1956 by the Council of the Architectural Association are as follows:

LEVERHULME SCHOLARSHIP, value £2,000 over five years.

ALLIED IRONFOUNDERS SCHOLARSHIP, value £75 pa (presented by the Allied Ironfounders, Ltd.).

"THE BUILDER" SCHOLARSHIP, value £75 pa (presented by The Builder, Ltd.).

THE HADLEY SCHOLARSHIP, value £75 pa (presented by past students of the School).

METAL WINDOW SCHOLARSHIP, value £75 pa (presented by the British Metal Window Manufacturers' Association, Ltd.).

PATENT GLAZING SCHOLARSHIP, value £50 pa (presented by the Patent Glazing Conference).

THE THOMAS WALLIS MEMORIAL SCHOLARSHIP, value £75 pa.

These scholarships, which are offered to applicants of British nationality, are tenable in the first instance for the first year, and may be renewed from year to year for the remainder of the course, subject to the holder's continued progress and need for such assistance.

SENIOR ENTRANCE SCHOLARSHIP

METAL WINDOW SENIOR SCHOLARSHIP, value £50 pa (presented by the British Metal Window Manufacturers' Association, Ltd.). This scholarship, which is tenable for two years, is open to students of British nationality who have passed the Intermediate Examination of the RIBA, either externally or at another recognised school of architecture, and is for entry to the fourth year of the course and subject to satisfactory progress by the student will be renewed for the fifth year.

Particulars and application forms for the above scholarships from the Principal, Architectural Association School of Architecture, 34-36, Bedford-square, London, WC1.

RIBA MAINTENANCE SCHOLARSHIPS

Full particulars from the Secretary to the Board of Architecural Education, 66, Portland-place, London, W1.

ARCUK MAINTENANCE SCHOLARSHIPS

Full particulars from ARCUK, 68, Portland-place, London, W1.

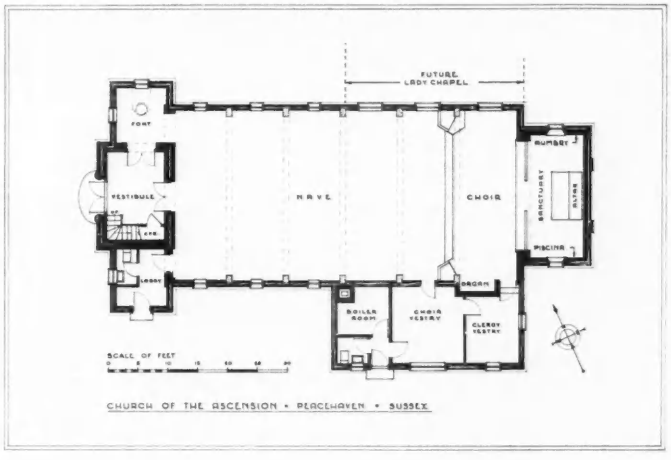
Photo : Brighton and Hove Herald

NEW CHURCH OF THE ASCENSION, PEACEHAVEN, SUSSEX

Architect
L. KEIR HETT, FRIBA
(SEARLE & SEARLE)

Quantity Surveyor
HAROLD POWELL, FRICS

Builders
T. J. BRAYBON & SON, LTD.



THE architects were commissioned in July, 1953, to prepare sketch plans for this new church to take the place of the low temporary building which was put up in the early stages of the development of Peacehaven immediately following the first world war. After visiting various new churches in the Diocese of Chichester, the Parochial Church Council asked for the design of the interior to be on similar lines to two of the churches recently carried out by the architects. This is in the form of load-carrying reinforced concrete ribs with suspended ceilings of acoustic material, the walls being of cavity brickwork. The tower was permitted, as it houses a gallery and bell chamber in addition to the entrance vestibule. Funds were very limited and, licensing being then in force, necessitated a very simple structure, and the Lady Chapel remains to be built at a future date. The heating is by oil-fuel boiler. The church was consecrated by the Bishop of Chichester in September, 1955.

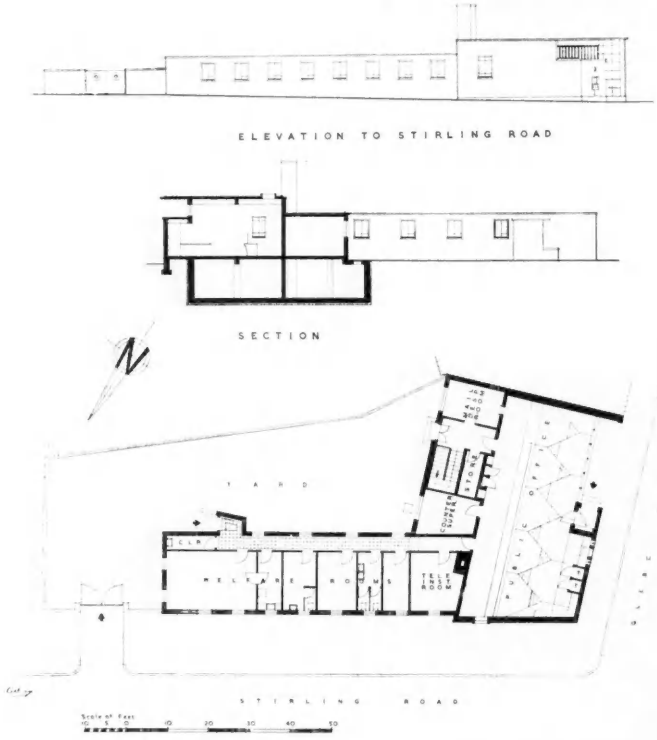
Sub-contractors were: Facing bricks, "Martlet" stocks, Keymer Brick and Tile Co.: central heating and electric light, W. H. Fellingham and Sons, Ltd.; reinforced concrete, Indented Bar and Concrete Engineering Co., Ltd.; roof tiling (hand-made sandfaced tiles), Benj. Ware and Co., laid by John Williams and Co.; lead light glazing, Lowndes and Drury, Ltd.; stonework and carving, Joseph Cribb and T. E. Tilley, Ltd.; joinery work, H. Baker and Co., Ltd. and Mr. Cole; door furniture, J. B. Bennett and Co., Ltd.; wood block floor (in African "Missanda"), Horsley Smith and Co., Ltd.; and suspended ceilings, Anderson Construction Co., Ltd.

Glebe-street front.

NEW POST OFFICE, ST. ROLLOX, GLASGOW

STEWART SIM, DA(Edin.), FRIAS, Chief Architect's Division, MoW, Edinburgh

ROBERT GILCHRIST & SON, LTD., Builders



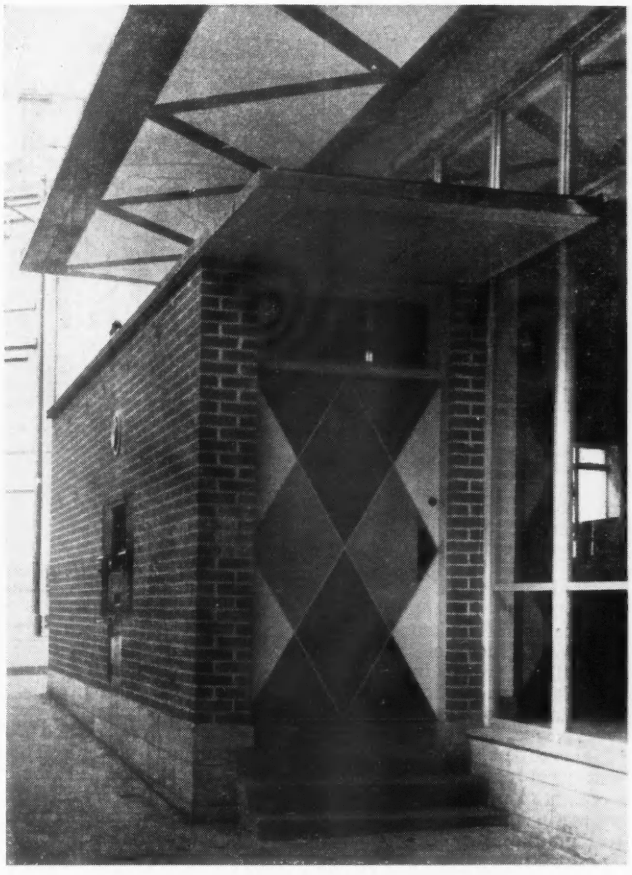
SITED at the corner of Glebe-street and Stirling-road, this building replaces the Post Office in Castle-street which has now become inadequate. Erection was started on November 30, 1954, and the building operations were completed on August 15, 1955. The cost is approximately £20,000. External walls are in a dark brown brick with cream stone dressings from Auchinlea quarry. The windows are standard type steel. Roofs are of pre-stressed and hollow concrete slabs covered with asphalt.

Accommodation comprises a large public office, supervisor's and telegraph instrument room, welfare rooms, etc. Heating is by means of low-pressure hot water from a boiler house in the basement. Artificial lighting in the public office is from fluorescent tubes hung above a " Diffulite " ceiling, except at the telegram writing tables where there are individual lights.

Most of the front of the building to Glebe-street is in glass which has been carried from beneath a wide projecting canopy to the floor. The entrance at right-angles to this glass front is

through a door decorated diamond-wise in strong colours. In the public office the long counter front of Macassar ebony is embellished with paterae to correspond with the aluminium counter grille that surmounts it. The floor is of cream terrazzo with different colour marble triangular inserts repeating the note struck in the soffit, the canopy and the exterior door. Each wall of the public office differs in colour and treatment. That on the right hand is special inasmuch as it is of faience tiles which have been carried beyond the window to the outside and on which is a large steel rod sculpture applied, symbolic of Post Office activities. Throughout bright pastel shades have been used in the decoration. The clerk of works was Mr. J. Clark.

Sub-contractors were: structural steelwork: Donald Clerk and Sons, Rutherglen; pre-stressed roof units: Concrete, Ltd., Falkirk; ribbed concrete roof units: Girlings Ferro Concrete Co., Ltd., Kirkintilloch; asphalt roofing and tanking: Neuchatel Asphalte Co., Ltd., Glasgow; metal windows: Crittall, Ltd., Glasgow; tile work: Toffolo Jackson, Glasgow; Diffulite ceiling panels: Metal Sections, Ltd., Birmingham; counter grille and posting box: Kingston Brass Co., Ltd., Glasgow; steelwire decoration: Thos. Hadden, Edinburgh; heating engineers: Wm. Fleming and Co., Ltd., Glasgow.



NEW POST OFFICE, ST. ROLLOX, GLASGOW: The Glebe Street entrance. Below: The long counter.

CORRESPONDENCE

COLLABORATIVE TRAINING

To the Editor of *The Builder*

SIR,—Your leading article in the issue of November 11 on the subject of collaborative training prompts me to make a suggestion, one less difficult to adopt than the organisation of joint classes for architects, quantity surveyors and builders over part of their courses. If I were running a School of Quantity Surveying, I should see to it that I had the help of both architect and builder teachers. In estimating and pricing, for instance, whilst a quantity surveyor can best teach his side of the subject, some of the lectures would be given by a builder; it is the practice in the builder's office which must be the basis of the quantity surveyor's methods. In the same way, for professional practice I should have some lectures given by an architect and some by a builder, with, perhaps, one or two in which the lecturers of all three branches took part, so that the varying views could be put forward and their merits discussed.

The same thing could be done in Schools of Architecture, where construction, specifications and professional practice lend themselves to such treatment, or in Schools of Building, where the architect could explain his difficulties in promptly producing perfect drawings and the quantity surveyor his remissness in completing final accounts!

It does not need conferences, committees nor reports to put such a scheme into practice. It is only commonsense to find as teachers those who know their subject best and to study all aspects of it. The tendency to make a "closed shop" of teaching, limiting it to the particular branch of the building industry, is merely allowing students to trot along like cab horses with blinkers.

ARTHUR J. WILLIS [FRICS].

London, SW1.

FINAL CERTIFICATES

To the Editor of *The Builder.*

SIR,—The President of the Architectural Association (your issue of November 4) has rightly drawn attention to the intolerable position in which many architects find themselves concerning the issue of a final certificate and the settlement of a contractor's account.

In many cases, local authority expenditure on building contracts is safeguarded by an architect, a quantity surveyor, an accountant, and a district auditor. Surely so many safeguards against the misuse of public money are unnecessary and a slight on the professions concerned? The appointment of a competent architect and quantity surveyor is the best safeguard a local authority can have, and the contractor's account and final certificate when issued and agreed by them should be honoured without delay.

Naturally the accountant to the authority must exercise some control, but this should aim at selecting professional advisers in whom the authority can have confidence and in providing checks against negligence and fraud. Such checks, however, should not delay the honouring to the final certificate, and the professions, as is their custom, would take full responsibility for their actions.

The detailed checking of the quantity surveyor's final accounts by accountants is intrusive, unnecessary and a waste of professional man-power. The professional institutes concerned would be performing a national service if they were to take steps to persuade local authorities that their members are worthy of the trust and responsibility reposed in them.

INGLIS.

"If I'd known we'd only to ask to get an increase after every Budget I'd never have voted against Mr. Butler!"

A LAW REPORT

To the Editor of *The Builder*

SIR,—The necessarily abridged report of the Law case following Arbitration of Finchley BC v. Messrs. Matthew James and Co., Ltd. [*The Builder*, November 11] could be read to infer that allegations of instructions given by the clerk of works to seal off expansion joints was unchallenged.

In fact these allegations were repudiated in evidence at the arbitration, and were supported by routine written weekly reports, copies of which I still have, being the clerk of works referred to. I shall be pleased if you will clear this point by publishing this letter.

H. E. CAMPBELL [MICW, AISanE].

40, St. Paul's-road, N1.

MISUSE OF WORD "ARCHITECT"

Successful ARCUK Prosecution

BECAUSE, in an advertisement for a bungalow, A. Rissen-Kent and Partners, of Newark, Notts, described their offices as "the Offices of the Architects," Newark Borough Magistrates decided on November 7 that Anthony Rissen-Kent, not being a registered architect, had sought to carry on business as such.

They fined Mr. Rissen-Kent £5 and ordered him to pay £10 5s. costs.

The case was brought by the registrar of the Architects' Registration Council, who was represented by Mr. F. B. Pearce. Mayor P. R. Allen appeared for the defendant.

MR. PEARCE said that before a man could practise as an architect he must be registered with the Architects' Registration Council. Although the business was registered as "A Rissen-Kent and Partners," there were no partners with Mr. Rissen-Kent at the time of the offence.

MR. PEMBROKE WICKS, of Portland-place, London, W1, registrar of the Architects' Registration Council, said that Mr. Rissen-Kent's name did not appear in the register.

MAJOR ALLEN submitted that there was no case to answer unless the prosecution could link the offices with Mr. Rissen-Kent only. He also submitted that unless the magistrates were satisfied that the word "architect" in the advertisement referred solely to Mr. Rissen-Kent, there was no case to answer.

After a reply by Mr. Pearce, the magistrates decided that there was a *prima-facie* case and the hearing continued.

In the witness-box, MR. RISSEN-KENT said his qualifications were AFS and AALPA, and he held various building certificates. On his notepaper the firm was described as "Auctioneers, Valuers, Land and Estate Agents, architectural, building and quantity surveyors."

He was well aware that he was not permitted to carry on business under a name, style or title containing the word "architect," and he had no wish or intention to apply for registration as an architect.

He employed about ten people, and on the day the advertisement appeared he was employing a Mr. J. W. Holmes, who was a member of the Institute of Registered Architects. Previously he had employed another architect who was responsible for the bungalow mentioned in the advertisement.

MR. PEARCE: "If you had seen the copy for that advertisement before it left your office would you have let it go through?"—"No."

MR. PEARCE: "Why not?"—"Because I would have realised that it would contravene the Act—I mean, may be taken as . . ."

MR. PEARCE: "Thank you."

MAJOR ALLEN finally submitted that there was no offence if it was agreed that A. Rissen-Kent and Partners was a firm. He cited Section 17 of the Act, which says: "Nothing in this Act shall prevent a body corporate, firm or partnership from carrying on business under the style or title of architect if the business of the body corporate, firm or partnership so far as it relates to architecture is under the control and management of a superintendent who is a registered person and who does not act at the same time in a similar capacity for any other body corporate, firm or partnership."

Major Allen said that Rissen-Kent's was a firm within the meaning of the Act, and in Mr. Holmes he had a registered person superintending the architecture side.

MR. PEARCE submitted that a one-man concern could not be termed a firm. He said that this point of law had not been put forward in defence before, and in making a ruling on the meaning of the word "firm" the magistrates would be making legal history. "I submit that it is only a defence if two or more people are in business."

News of the Week

BRADFORD CATHEDRAL

AN appeal for £250,000 for work to be done on the fabric of Bradford Cathedral was launched at a luncheon at Bradford on November 3. The scheme includes some extensions and the architect, Sir Edward Maufe, RA, states in the appeal brochure that he proposes to provide greater length to the chancel and sanctuary.

£60,000 had already been raised by a pre-appeal fund, announced Mr. J. H. Shaw, chairman of the appeal committee. He said that the cathedral was the centre of the design for the city's redevelopment plan for the central area.

A message read at the luncheon from the Archbishop of York, Dr. Cyril Garbett, who could not be present for health reasons, said a cathedral more worthy of the importance of the city was needed in Bradford: "Some of the largest and most beautiful churches in this country were built in the Eastern counties by the wool merchants of the Middle Ages. Bradford, a great centre of the woollen trade, is now charged to build a church as splendid and glorious as any which were built in the past. You have a wonderful opportunity which rarely comes in any generation."

CATHEDRAL APPEAL

AN APPEAL for £100,000 for urgent repairs to the fabric of Peterborough Cathedral and to provide revenue for its maintenance was launched on November 11. This year is the 13th centenary of the founding of the monastery which became the cathedral church.

The immediate capital expenditure required amounts to £75,000 for the restoration of decayed masonry and woodwork; the re-leading of parts of the roof; the stripping and re-slating of the north transept roof; the re-glazing of windows, including repair and renewal of defective stonework; the reconstruction of the ancient table hall as an extension to the library; and the renewal of heating equipment.

An additional assured income of £1,000 a year is estimated to be needed to secure the preservation of the cathedral in the near future. This is estimated to require a sum of £25,000. At present, only £1,200 is assured annually for general restoration work.

NUFFIELD COLLEGE ADDITIONS

A NEW BLOCK of buildings is being erected at Nuffield College, Oxford, to complete the upper quadrangle with a frontage to New-road. Costing more than £200,000, it is expected to be finished by the end of 1957, and the main tower will be 90 ft. high—a stone superstructure and fleche giving an overall height of about 150 ft. At the foot of the tower will be the main entrance to the college with a porter's lodge in New-road, and above this will be a library and reading room. Most of the tower will consist of a book stack accommodating 80,000 books, with the top room in temporary use as a senior common-room. The block will also include a hall in the traditional style to seat nearly 100, with a modern labour-saving kitchen planned to allow a cafeteria service if necessary. The additions, designed by Harrison, Barnes and Hubbard, F/AA.RIBA, will be constructed of Clipsham stone, the contract being carried out by Benfield and Loxley, Ltd., of Oxford.

GEORGE VI FELLOWSHIPS

AMONG the candidates recently presented for the degree of Master of Architecture at the Carnegie Institute of Technology, Pittsburg, was Mr. R. E. Williams, ARIBA, who had completed a year's post-graduate study of industrial architecture.

Mr. Williams, whose home is in Kingston, Surrey, is a former student of the LCC's Brixton School of Building, where he completed the full-time course in architecture in 1954. He passed the RIBA final examination in July of that year and was awarded a George VI Memorial Fellowship, which enabled him to undertake a year's post-graduate study in the United States.

Another former Brixton student, Mr. D. J. T. Shears, whose home is in Brixton, SW2, was awarded a George VI Memorial Fellowship this year and is at present pursuing a course in industrial management in the post-graduate school of Cornell University.

HARLOW TRIBUTE

TWO HUNDRED people, representative of nearly all the organisations in the town, filled Moot Hall, Harlow, on October 31, to pay tribute to Mr. W. Eric Adams, CBE, who has resigned as General Manager of the Harlow Development Corporation.

Cllr. A. Brown, JP, chairman of the newly created Urban District Council, who had organised the town appeal for the Testimonial Fund, presented Mr. Adams with an inscribed silver salver as a personal memento of his work for the town and announced that over £600 had been subscribed. With the balance it was proposed to erect a clock in The High, the new Town Centre now being developed.

Mr. Frederick Gibberd, CBE, FRIBA, Architect Planner of Harlow, referred to the "organising genius Mr. Adams had brought to the difficult task of town building."

SINGAPORE IMPROVEMENT

THE REPORT on the work of the Singapore Improvement Trust for 1954, compiled by Mr. J. M. Fraser, CBE, ARIBA, MTPI, manager of the Trust, is an excellent production, full of facts and figures on the progress of housing, planning and administration in that distant outpost of the free world. Since 1947 the Trust has built about 10,000 units of accommodation and is now turning its attention to the problem of slum clearance. The report contains a large number of illustrations, including plans, photographs and drawings executed and proposed new work, houses and flats of commendable architectural quality, and other buildings, notably two fine covered markets. Price $2, it is published by the Government Printing Office, Singapore.

ICI TRAVELLING SCHOLARSHIP

THE Imperial Chemical Industries travelling scholarship for 1955 for a 5th-year student at the Architectural Association School of Architecture has been awarded to Miss Anna Tomlinson. The scholarship has a value of £250 and is to enable the recipient to undertake study and research abroad in connection with the decoration of buildings.

CHADWICK MEDAL AWARD

THE Chadwick Medal and prize for excellence in municipal engineering and hygiene has been awarded to Mr. Compton A. W. Deane, BSc(Eng), a native of British Guiana, and formerly a student in the Chadwick Department of Civil and Municipal Engineering, University College, London.

COUNTY ARCHITECT'S POST

RADNOR COUNTY COUNCIL invite applications by December 12 for the post of County Architect and Planning Officer. Salary £1,150 per annum, rising to £1,322 10s. Details advertised in this issue.

NEW APPOINTMENTS

MR. KENNETH STEEN, Deputy County Planning Officer, West Riding County Council, Yorkshire, has now been appointed County Planning Officer to Cumberland County Council.

MR. T. B. KENNEDY, ARIBA, AMTPI, Regional Planning Officer to the Ministry of Housing and Local Government at Nottingham, has been appointed to the newly created post of County Architect and Planning Officer to Rutland County Council.

PROFESSIONAL ANNOUNCEMENTS

MR. SIDNEY LOWETH, FSA, FRIBA, who was architect to the Kent County Council for a number of years and retired recently, is now consultant to MESSRS. H. O. CORFIATO, THOMSON AND PARTNERS, FF.RIBA, FSA, SADG, of 15, Woburn-square, London, WC1 (tel.: Langham 5414-5-6).

MR. FREDERICK MACMANUS, FRIBA, has taken into associate partnership MR. RICHARD M. WACKERBARTH, BArch, ARIBA. The practice will be continued as previously under the style of MESSRS. EDWARD ARMSTRONG AND FREDERICK MACMANUS, chartered architects, from 28, Gloucester-place, Portman-square, W1 (tel.: Welbeck 2273-4).

MR. JOHN GODWIN, ARIBA, is now in practice with his wife, MISS GILLIAN HOPWOOD, ARIBA, under the style of MESSRS. GODWIN AND HOPWOOD, chartered architects. They have opened their offices at 8, Oil Mill-street, Lagos, Nigeria, where they will be pleased to receive trade catalogues. All communications should be addressed to Private Mail Bag 2148, Lagos.

MR. KENNETH S. LEVENSON, AFS, quantity surveyor, has moved his office to larger and more central accommodation at 38, Parliament-st., SW1 (tel.: Whitehall 4148).

FROM "THE BUILDER" OF 1855

Saturday, November 17, 1855

NEW METHOD OF JOINING IRON PLATES. A patent has very recently been granted to Mr. Bertram, a practical engineer employed in the dockyard at Woolwich as foreman of the factory. His invention consists of a process of firmly joining together slabs of sheet-iron work for boilers, building ships, and erecting bridges, etc., without the use of rivets, by fusing the two edges of the plates to be adhered, and striking them simultaneously on both sides. The structure, it is said, is thus rendered materially lighter, and much stronger.

THE BUILDING EXHIBITION

The Opening Ceremony

THE Building Exhibition, which is being held at Olympia, London, until November 30, was officially opened by Mr. Nigel Birch, Minister of Works, at 12 noon on Wednesday.

MR. C. H. ASLIN, CBE, President of the Royal Institute of British Architects, who presided at the ceremony, paid a tribute to the Montgomery family for their work in running the exhibition for so many years. The need for closer association between architects and builders, he said, was recognised in the fact that the PRIBA always took the chair at the opening of the exhibition. In this connection he thought that architects were getting into closer relationship with other members of the building team than heretofore.

MR. BIRCH said that the Building Exhibition was the largest of its kind in the world. It was, of course, important as a show place where the builders' materials manufacturers could display their wares, but it was also important as a meeting place where all interested in the building industry could get together. It was therefore appropriate that the chair should be taken by a distinguished architect, for if architects were not interested in new methods of construction and new materials we were not going to get anywhere.

It was also important, he continued, that not only contractors and others directly connected with the industry should attend the exhibition, but also building owners, for after all they paid the bill. There would also be a large number of foreign visitors, including a party of Russian building technicians. Altogether more than 50 industries were represented at the exhibition, and 28 trade and other associations. In addition, under the auspices of the National Joint Apprenticeship Board, the work of craftsmen, such as joiners, bricklayers, masons and so on would be on view.

THE NATION'S INTEREST

Continuing, Mr. Birch said that not only the industry but the whole nation was vitally interested in building, which employed about one and a half million men and contributed 50 per cent. of the fixed investment in the country. Obviously, therefore, if the industry were not fully efficient, wasteful of materials, or its products too dear, it would affect the whole country. For this reason the Government had always taken a great interest in building research, and at the exhibition there were three Government stands.

The Ministry of Works stand dealt with among other things, fly ash and smoky chimneys. He thought they had some good ideas to offer. The econo-

The Minister of Works, Mr. Nigel Birch, speaking at the opening ceremony. Others (left to right) are Sir Luke Fawcett, Mr. C. H. Aslin and Mr. Harvey Frost.

Some members of the Russian delegation seen talking to Sir Eric Seal (Deputy Secretary, MoW) at the Exhibition. Sir Eric is second from left.

"The Builder" Stand at the Exhibition (Row G.141).

mical use of fly ash was something which he thought they should take an interest in, as there was likely to be a shortage of light aggregates in the future. It would be invidious to pick out other individual stands, and his advice to those present was "to see them all."

Mr. Birch then turned to the foreign aspect of the industry. Last year, he said, we had exported £70m. of building materials and components without starving the home market, and as productivity increased we ought to be able to increase these exports still further. He congratulated the manufacturers on what they had already achieved, but they would and could do better in the future.

Then there was overseas contracting. By tradition, Britain had always done contracting work abroad, and this year we had obtained some very good contracts. Like everything else, however, things were not getting any easier in this direction, but he believed that British contractors would not be pushed out of this important field.

A vote of thanks to the Minister for his speech was proposed by MR. HARVEY G. FROST, OBE, President, National Federation of Building Trades Employers, who said that the two years since the last Building Exhibition had seen many organisational changes in the industry, not the least of which was the relaxation of the controls under which they had laboured for so long. It was, of course, the function of the Minister of Works to administer "the chains and regulations" that the Treasury might impose, and he did not yet know the full effect of the Chancellor's latest proposals.

A CHALLENGE ACCEPTED

The relaxation of controls had brought them the fresh air of freedom, and it was not surprising if at first this seemed to some more like a chilling blast. There was no longer the plausible excuse for lack of pre-planning, but the industry was on its mettle and would accept the challenge.

Mr. Frost added that though they looked upon the Ministry of Works with affection as "the father and mother" of the industry, this affection was not lessened now that the industry was deemed to have reached years of discretion. They all valued the guidance and assistance that the Ministry gave them.

The fourth member of the platform party, SIR LUKE FAWCETT, said that on this occasion, after 50 years' of work on their behalf, he represented the building operatives unofficially. He was very happy to be associated with the vote of thanks to the Minister which Mr. Frost had so ably moved. He reviewed the great task achieved by the industry in the past 14 or 15 years in repairing and making good the devastations of war, and the nearest he came to controversy was in saying that he felt some apprehensiveness on behalf of the operatives as to how long the present conditions of full employment would last.

Chartered Quantity Surveyors

THE ANNUAL DINNER

THE annual dinner of the Quantity Surveyors' Committee of the Royal Institution of Chartered Surveyors was held at Grosvenor House, W.1, on Tuesday, November 15, when more than 1,000 members and guests were present. Mr. G. P. Vale, chairman of the committee, presided.

The toast of "Our Guests" was proposed by MR. K. K. DALE, a member of the Quantity Surveyors' Committee. He said that this was the one opportunity in the year when chartered quantity surveyors had a heavensent opportunity to make public pronouncements, but it was also a social occasion, and therefore any serious remarks would only be incidental to what he had to say.

Mr. Dale set the tone of his speech by telling an anecdote of the quantity surveyor who submitted his bill of quantities two days before he received the plans from the architect—which set an awkward precedent! Quantity surveyors, he continued, were rather steeped in their work, so he would speak under four familiar heads. The first was dimensions, which constituted by far the most numerous pages of their work, and might therefore allude to the guests, who greatly outnumbered the members present.

The second head was the abstract, where all dimensions were gathered together under their appropriate headings—this might apply to the galaxy of talent that was gathered at the top table. Something else that was abstract was the part that the bill of quantities was supposed to form in the contract, but perhaps, he suggested, the new revised RIBA Form of Contract would shed some light on this.

The approximate estimate was now much to the fore. A reliable way of finding this, the speaker said, was to get an accurate bill of quantities and standard method of measurement, send this out to tender, and the result would be a series of approximate estimates!

Next came the bill—their first objective, and probably the most dignified part of their work. The thought of dignity brought him to one of their guest speakers, the Bishop of Guildford. His standard of works was higher than a quantity surveyor could aspire to, but the example set was no doubt a good thing for them.

Lastly came the final account, which cleared up the contract, local authority officers and district auditors permitting. They had, of course, the Minister of Works with them—"the boss of Government quantity surveyors"—and they sympathised with him, as political life was even more uncertain than that of quantity surveyors. The profession had to be politically neutral, but they sometimes found difficulty in knowing on which side to be neutral!

FIXED PRICE CONTRACTS

MR. NIGEL BIRCH, Minister of Works, who responded, referred to the fact that the chartered quantity surveyors were part of a larger Institution with 21,000 members. They included many distinguished men in their ranks, and it was of interest that no legislation that affected them was introduced by the Government without the RICS being consulted.

The RICS had a lot to do with costs and prices. This brought him, via references to cookery books and after quoting:

> "Apple tart without cheese
> Is like a kiss without a squeeze."

to the credit squeeze. We had had, Mr. Birch continued, creeping inflation for many years, a condition that "harmed the sheep more than the goats." It was a bad symptom of this perpetual inflation that they could never get a firm price for a job. The Government very much hoped, however, that they would be able to stop inflation and work back to firm prices for jobs—cost plus, he said, was "a positive invitation to continued inflation." He was confident, however, that the quantity surveying profession would carry out their part of the task "in the not very easy position that is coming" as they had done in the past.

THE BISHOP OF GUILDFORD (the Rt. Rev. H. M. C. Campbell), who also spoke for the guests, referred to "the very onerous task" of the erection of the new Guildford Cathedral, but he believed that future generations would commend them for what they were doing. They had not had good luck with the building of the cathedral—the war had caused a long interruption in the work—but in the last few months a good deal of progress had been made, and he believed that a worthy building would be erected on the cathedral's "glorious site."

The Bishop also made a lighthearted reference to the work undertaken by the Ministry of Works at his home, Farnham Castle. He was sure the Ministry took this seriously; and as to the workmen, why, by their demeanour, they evidently meant to make it their life's work!

Among those present were:—

Mr. W. Charles Norton, President, Law Society; Mr. C. H. Aslin, President, RIBA; Sir Charles Mole, Director-General of Works, MoW; Mr. W. R. Brackett, President, RICS; Mr. F. Leslie Wallis, President, IOB; Mr. Harvey G. Frost, President, NFBTE; Sir George Burt, President, Federation of Civil Engineering Contractors; Mr. Sydney Tatchell, Chairman, Joint Contracts Tribunal; Mr. L. J. Holloway, President, LMBA; Mr. P. C. Ford, President, Federation of Associations of Specialists and Sub-Contractors; Mr. W. W. Sapcote, Vice-Chairman, Standing Joint Committee, Standard Method of Measurement of Building Works; Mr. M. E. Adams, Civil Engineer-in-Chief, Admiralty; Major-General G. A. T. Pritchard, Director of Fortificatons and Works, War Office; Sir George Fretwell, Director-General of Works, Air Ministry; Sir Eric Seal, Deputy Secretary, MoW.

Mr. S. W. C. Phillips; Mr. H. G. Tyrrell-Evans; Dr. J. L. Martin; Mr. J. Gordon Elsworthy; Mr. H. W. Wells; Mr. Guy Biscoe; Mr. G. C. Russell; Mr. C. D. Spragg; Mr. S. F. S. Hearder; Brigadier A. H. Killick.

ROSS TENDER REFUSED

The Ministry of Housing and Local Government have informed Ross UDC that a tender in the region of £50,000 for the building of 30 houses at Berryfields is £300 a house more than can be approved. This information caused concern among councillors at a meeting held on November 1, when it was pointed out that the site had been prepared and was ready for building to commence.

LCC REFUSED APPLICATION FOR POSSESSION

Rejection on Point of Law

AN application for possession by the London County Council was refused at Old-street Magistrates' Court on November 11 after a solicitor had successfully raised what he called a "highly technical" objection to a notice to quit served on his client, Mr. Charles Albert Farren.

Possession of premises at 72, Gossett-street, 51, Turin-street, Bethnal Green, E2, and land adjoining at Turin-street, including a yard, had been sought by the council.

MISS MARY WINIFRED WESTGATE, of the Valuer's Department of the Council, said the premises were used for storage purposes in connection with Mr. Farren's business. She had served on him a six months' notice to quit, the expiry date being August 5, 1955. He had not complied. Possession was required for redevelopment purposes. Blocks of flats were to be built.

MR. J. L. LANNON (solicitor for Mr. Farren) said the ground upon which he opposed the application was that the notice to quit under the Landlord and Tenant Act, 1954, was not valid. A clause of the tenancy agreement said the notice had to be signed by the Director of Housing and Valuer to the Council. When the agreement was granted there was only one person holding such a position. There were now two people, a Director of Housing and a Valuer. The notice was invalid, he contended, because it was signed only by the Valuer, whereas it should have been signed also by the Director of Housing or alternatively by the Valuer, stating that he was signing as agent for the Director of Housing as well.

MR. COX (for the LCC) said that when the tenancy was entered into, the Director of Housing and Valuer was the person entitled to sign the notice. When the functions were divided, the control of that particular property passed to the Valuer alone. The Director of Housing was no longer concerned with that property. He argued—though Mr. Lannon differed—that if the objection was a good one the tenancy was "indeterminable"; it could not be put to an end. That would be "ridiculous."

Giving his decision, THE MAGISTRATE (Mr. Leslie Marks) said in his view those notices had to be signed by the two people; otherwise they were not valid. He had no doubt that it was an error which would be put right in the future.

BEATING THE BUDGET

"Normal Procedure" Abandoned

HOUSING AUTHORITIES in various parts of the country were involved in an "eleventh hour" rush to secure the pre-budget rate of subsidy on their housing schemes.

At Plymouth, two special meetings of the Housing Committee were called in three days and officials worked day and night to check costs quoted by contractors for a £1 million scheme for building 775 houses, which was approved months ahead of schedule in the effort to save ratepayers £7,000 a year for 60 years.

At a meeting on November 2, the day before the reduced rate of subsidy came into operation, Hertford Borough Council decided to increase a contract for 40 houses to 66, and at Wrexham a special meeting of the Council was called to approve a negotiated tender of £97,631 for 91 houses. There was no time, explained the Chairman of the Housing Committee, to call for tenders in the usual way.

ARCHITECTS' AND QUANTITY SURVEYORS' FEES

Birmingham to Hold Inquiry

BIRMINGHAM City Council at its meeting on November 8 agreed to an inquiry into architects' fees, and those of quantity surveyors, in respect of new buildings.

CLLR. V. E. TURTON, disclosing that consultants' fees would probably have to be paid on £8,000 spent on fuel to heat the new Colleges of Technology, Commerce and Art building to enable the builders to work during last winter, said that it was "a ridiculous situation."

A move to secure the inquiry took the form of an addendum to the report of the general purposes committee which was approved without dissent. Moving the addendum, ALD. A. F. BRADBEER said there had been considerable controversy about some of the costs arising in connection with the new colleges, and a point that had baffled him was that professional advisers always got a percentage of any rise in costs of building and materials. It was an entirely different matter when a professional man did extra work owing to rearrangement of a building and extra costs were involved by his staff owing to redesigning, but it was wrong that architects and quantity surveyors, particularly architects, should get their percentage on higher costs due to increased wages and the price of materials which involved no extra work by them.

The criticism applied to all forms of building, and although he did not wish to go into individual cases, he felt more should be known about the system that was operating in the case of "that very expensive building" housing the new colleges.

Seconding, CLLR. TURTON said that it was the duty of the council to save money whenever it could. Referring to the colleges, he said that because of errors of judgment and because of the long spreadover of building time, instead of costing £2m. the colleges would cost nearly £4m. Most of the planning for the building had been completed before the war, but because the contract was going to take 19 years to complete, the building would cost much more and the consultants would get their cut of the extra amount.

ALD. STEPHEN LLOYD pointed out that there had been extensive alterations to the original plans for a building, and said it was a travesty of the truth to suggest that architects had done no work on it after the war and had merely drawn increased fees because of the rise in the cost of materials. While he had no objection to the proposed inquiry, it must be approached in a spirit of fairness.

CLLR. A. E. SHAW said that an investigation was long overdue. It was wrong that the consultants should receive extra remuneration which was denied to the builder completing the contract. He thought the investigation should be extended to include the city's own department and not restricted to private architects.

ALD. W. T. BOWEN, chairman of the general purposes committee, said the inquiry would have to take into consideration all the facts and present a factual and unbiased report. Everyone agreed that the architects were faced with rising costs. One of the most reprehensible features of the present system, however, was that the mere passage of time involved the corporation in increases in professional fees. Any inquiry must establish comparison between the cost of services provided by the corporation's own professional advisers and the cost of employing outside professional assistance. Building craftsmen were to receive an increase of 11s. a week and builders' labourers 10s. a week, and in addition would now qualify for incentive bonus payments. ALD. D. JOHNSTONE, chairman of the establishments committee, said that nearly all the corporation's employees were now receiving rates of pay in excess of the national scales. That was easing many labour difficulties, he added.

Architects' and Surveyors' Joint Statement

FOLLOWING upon the decision of Birmingham City Council to hold an inquiry into professional fees, a joint statement was issued on November 9 by MR. KENNETH K. DALE, chairman of the Warwickshire, Worcestershire and Staffordshire branch of the Royal Institution of Chartered Surveyors, and MR. S. T. WALKER, FRIBA, president of the Birmingham and Five Counties Architectural Association. The statement was as follows:

"The present discussions in the city council have centred around the fees in connection with the new Colleges of Commerce, Art and Technology at Gosta Green, but obviously, without full knowledge of all the facts, it is impossible and pointless for any opinion to be expressed concerning this particular case. Statements have, however, been made during the course of these discussions which seem to indicate that there is a lack of understanding concerning the basis of professional charges in general which may create a false impression in the mind of the public.

"The basis of architects' fees has been determined by the Royal Institute of British Architects, and that of quantity surveyors by the Royal Institution of Chartered Surveyors, and those of other consultants by their own respective professional bodies. Members of these associations are bound by codes of professional conduct and must abide by and apply those scales of charges, which are generally recognised as fair and reasonable. The objects of these codes and scales is to ensure a high standard of professional conduct among members in the general interest of the public.

"Architects' fees have always been based on the final cost of the work carried out, since this is the fairest method of computing the value of an architect's services and his responsibilities in relation to any project. Additional wages and salaries have been generally awarded over recent years primarily to meet the increased cost of living and not because of additional work or duties performed. Increased costs in building are part of the increased cost of living, which affects professional people no less than all other members of the general public."

Town Planning Institute Presidential Address

MR. DESMOND HEAP'S PAPER

MR. DESMOND HEAP, LL.M., (LM), delivered his presidential address to the Town Planning Institute at the Livingstone Hall, Broadway, SW1, on November 3.

The following extracts are taken from Mr. Heap's address:—

Architecture and the external appearance of buildings is a vexed and delicate question because the "look" or appearance of a building is a matter of taste on which opinions may differ. Yet the "look" or appearance of a building is something which hits the public right in the eye and when they don't like it they vent their wrath, I notice, on planning and on planning authorities.

Local authorities have, and have had for years under planning law, an undoubted and responsible role to play in connection with the external appearance of buildings, and in the discharge of this role they are entitled to take, and often do take, advice from panels of experts or from other bodies well qualified to offer constructive criticism. When a local authority has done this it has done all it can be called upon to do; it must then decide in the light of the advice it has received whether to let the building through or whether to turn it down, the responsibility for the decision being that of the local authority alone.

If the building is approved (perhaps with misgivings) and the public don't like it one hears frequently to-day the cry, "Planning has failed." But is this fair? Is it even true? It is no part of the duty of a local authority to start redesigning an applicant's building, as the Progress Report of the Ministry of Town and Country Planning (Cmd. 8204 at p.154) rightly pointed out in 1951 and the Report of the Ministry of Housing and Local Government (Cmd. 9559 at p.75) rightly confirms in 1955. The words of the Ministry in 1951 are worth quoting: "It is important to emphasise that (planning) control alone cannot secure the desired result. It is not the function of the planning authority to redesign an applicant's building and a compromise design may often be almost as dull and uninspiring as the original conception . . . the attainment of a general high standard of building must depend on the growth of æsthetic taste and architectural appreciation."

ARCHITECTURAL DESIGN

It would be a good thing, I believe, if the design of all buildings, including small houses, were dealt with by qualified architects in the first place—this would at least remove some of the worst excesses of many a well-intentioned, but often misdirected, suburban house builder—but it would not, of course, be a panacea for all the evils for the simple reason that not all the designs of all architects are acceptable to all the people all the time.

In this matter of architectural design planning is at the moment taking a knock which it does not deserve. Design, as I said, is a matter of taste on which opinions may legitimately differ, but, if I may venture a personal opinion, I think there is a lot to be said for good manners and good neighbourliness on the part of buildings taken one with another. For example, it may well be wise to design the inside of a concert hall to resemble an efficient machine for listening to music in, but, this being so, was it really necessary, may I ask with respect, for the outside of the Royal Festival Hall to be as it is—so stridently assertive, so shockingly different—that it coalesces with nothing at all? Where many hundreds of people enjoy the inside of this building many thousands have to put up with its external appearance.

For myself I must say that I have reservations about what I would call the clever-clever-oh-so-daring-school-of-stunt-architecture-with-a-difference. New and exciting buildings let there be, but cannot they, while moving with the times, derive in some degree from what is best in the past instead of being (as they seem to me to be) a manifestation of architecture growing in the middle of the air without roots, ancestry or anything of the kind? In the Royal Exchange in the City of London there was recently held an architectural exhibition called "Turn Again," where one was received in hospitable fashion which makes it all the more difficult for one to say that the buildings portrayed (mostly from foreign countries and featured in the exhibition, I take it, as being things to emulate) all seemed to be much more the kind of thing to avoid rather than copy, certainly in such an exceptional enclave as the City of London. Functionalism is all very well, but is there any real reason why the functional skeleton should not be decently clothed with the flesh and blood of gracious building? I do not subscribe to the school whch says functionalism is enough. Gasometers are completely and efficiently functional, but that does not prevent them being confounded eyesores wherever they are found. The Grecian Urn was distinctly functional, but it was also a thing of beauty and a joy for ever.

Planning control over the external appearance of buildings is undoubtedly available to those local authorities who wish to exercise it (and some might exercise it more than they do) but the limitations of such control over matters of taste and æsthetics should be fully appreciated and, if it is, town and country planning will not then be blamed (as it should not be) for the erection of buildings the external appearance of which is, to put it lightly, not everybody's cup of tea.

PLANNING AND ROAD TRAFFIC

Let me turn now to roads, where again planning and public opinion are especially inclined to meet. Here undoubtedly planning should pull up its socks and take note of facts as they exist and trends and tendencies as they threaten. Is it not crystal clear that some bold comprehensive scheme of new main roads is urgently required in this country? Improved roads and car parking accommodation away from the street are the only solutions to the traffic problem, and it is one of the responsibilities of any national scheme of town and country planning to see that these remedies are provided.

The road construction programme recently announced seems entirely inadequate to keep pace with the outflowing of new traffic and if, ultimately, the traffic does come to a standstill then planning, operating in this instance through the Ministry of Transport, will get the blame.

There is another point about roads which is unhelpful to the cause of land planning. Over and over again it happens that a local authority is embarrassed in dealing with an application for planning permission for development because there has been no clear-cut decision about the siting of a new or improved road. Frequently this happens in connection with the redevelopment of heavily war-damaged areas, in which the carrying out of rebuilding operations clearly cannot proceed until the new road lay-out for the area has been settled. Lack of decision in high places about the road pattern causes delay and frustration for potential developers, who then seek to vent their wrath on local planning authorities not in fact responsible for the delays and slow-motion tactics with which, all unwillingly, they have to treat applications for planning permission in such circumstances. The fact that an applicant can bring matters to a head by demanding a decision one way or the other within the limited period provided by statute and then, if he doesn't like the decision, or if he gets no decision at all, appealing to the Minister of Housing and Local Government, is no good advertisement for planning control and does the cause of planning a grave disservice in the eyes of the public. Cannot, one is impelled to ask, somebody, somewhere—in the Ministry of Transport I surmise—get the new road pattern for at least the next 20 years settled once and for all at an early date?

The preservation of green open spaces around built-up areas and the restriction of the tendency of urban areas to spread continually further and further out from a centre which thereby becomes increasingly removed from a breath of country air, is surely one of the fundamentals of planning control. In my opinion the Minister of Housing and Local Government never did a better service to town and country planning than when, in sending his recent Circular No. 42/55 of August 3, 1955, to local authorities, he emphasised the need to preserve green belts to prevent neighbouring towns from merging one with another, and the open countryside becoming separated still further from the centres of large built-up areas. The implication of this policy must, however, be faced resolutely because it means, in effect, the drawing of iron bands around the built-up areas of many an existing town and the making of the bold assertion, "Thus far and no farther." Towns excessively imbued with the idea of an ever-growing population and the spicy attraction of the increase in rateable value flowing therefrom, may well receive this policy with

reserve, and careful attention will have to be paid to see that planning applications for development in green belt areas are not mistakenly granted. Incursions into the green belt on the score of " infilling " and " rounding off " existing schemes of development will need to be closely watched, for there is a limit to the amount of " infilling " and " rounding off " which can fittingly be carried out in any given area.

INTENSIVE REDEVELOPMENT

On the other hand, I think it must be accepted that in what I have already called this tight little island of ours the preservation of green open space around built-up areas may well require high density development in the built-up areas themselves, and this in turn will require much more attention being given than is at present the case, to the intensive redevelopment of those areas of bad layout and obsolete development so often to be found at the core of towns, both large and small. In short, towns should be towns and country should be country and never the twain should mingle; on the contrary, there should be a clear-cut line where the pavement ends and the green fields begin. Such a state of affairs is, I suggest, of the very essence of good town and country planning, and is, moreover, one of the things by which its success or failure is most likely to be judged by popular opinion.

Mr. Heap also dealt at some length with the question of planning and public inquiries, in the course of which he stated:—

To-day I am increasingly impressed with the wisdom of stimulating public confidence and support for planning control at all times and wherever possible, and I think that the more that planning inquiries are held, and planning decisions taken, " out in the open," as it were, instead of " underneath the counter," as the cynics would say, the better it will be for the fair name of planning. Publication of the inspector's report, together with the Minister's reasons for making a decision (which, on policy grounds, he is fully entitled to make) contrary to a recommendation made by the inspector in the report, may also lead to a fuller emergence of what the national planning policy of the Government is, and this would undoubtedly be a good thing.

VOTE OF THANKS

A vote of thanks to Mr. Heap was proposed by DAME EVELYN SHARP, Permanent Secretary to the Ministry of Housing and Local Government. She said they were all in agreement with Mr. Heap's point that they should increase and strengthen public support for planning because as planning increased its momentum and increased its effects on the individual, it was more than ever necessary that members of the Institute and planning authorities should be constant in their efforts to see that people understood what planning was for and why they were doing it. One of the remarkable things was the acceptance on both sides in Parliament of the general necessity of planning despite the criticism of it. This gave them an opportunity which they should not lose of making people understand what planning authorities and the Ministry were doing for planning. On the general thesis that planning authorities were often blamed for much of the poor architecture that was around, and blamed unfairly because it was no part of their duty to redesign buildings, she thought Mr. Heap had rightly said that the only way ultimately to deal with the problem was by public education. This was a problem for the Institute and the planning authorities. In this matter she felt that housing authorities had shown some improvement since the war, but it was an immense question how to educate the public in the truth of what made good design and lay-out.

Dame Evelyn also supported Mr. Heap in the view that new roads should have strong priority. When they criticised the Ministry of Transport they must remember the difficult position they had been in. Commenting on the problem of green belts, she considered it was not difficult to preserve them. The implication of the green belt policy was decentralisation and development beyond the green belt. They had arranged a number of new towns which had been successful and there were more to come. More must be done to educate public opinion of the real necessity for findng places where they could create new towns.

While the mounting number of planning inquiries was causing great anxiety to them at the Ministry, she felt they must not distort public opinion in their efforts to reduce them. They would have to devise a different method than that which at present existed. They should appeal to local authorities to make quite sure that when they refused permission for development, they refused it for an important reason.

MR. M. J. HELLIER, vice-president of the Institute, and County Planning Officer for Derbyshire, who seconded the vote of thanks, thought that one of the difficulties with which planning authorities were confronted at the moment was that they were putting into operation a day-to-day policy which was not necessarily their own policy.

Discussing the problem of roads and the general land pattern of the country, he thought it would be a good thing if these two technical operations were brought into a closer relationship because any scheme must be practical or it would not be an ideal solution.

BUILDING WAGE CLAIM

NFBTE President Hints at Arbitration

MR. HARVEY G. FROST, OBE, National president, speaking at the annual dinner of the Brighton, Hove and District Association of Building Trades Employers at Brighton, on November 11, said: " The wage claim which, according to Press reports, the building operatives have decided to make, will have to be submitted to the National Joint Council for the Building Industry by November 15. As it will be considered at the Council's January meeting, I would only say at the moment that the negotiating machinery provides for recourse to arbitration in the event of disagreement."

∴ As reported in our last issue, the new total claim is for a further 6d. an hour.—ED.

TOMORROW'S BUILDER

Training for Management

WITH the establishment of the LMBA's articled pupil scheme, the building industry in London is now in a position to offer young men seeking to enter it three ways of doing so, first by serving a five years' craft apprenticeship; secondly, by becoming indentured students, and, thirdly, by becoming articled pupils. Craft apprentices come under the jurisdiction of the National Joint Apprenticeship Board; students and pupils training for administrative and executive posts under the Board of Administration set up for the purpose by the LMBA.

In 1948, the London Master Builders' Association, which represents the employers of London in their relations with Government Departments, Local Authorities, the professions and the operatives, instituted a scheme by which boys could be accepted into the industry as management trainees, and attend part-time courses at technical colleges during their apprenticeship. Since then several members of the LMBA have successfully operated schemes of this kind. The scheme has now been brought up to date in the light of their experience. It is known as the Studentship Scheme.

The LMBA has now established a new scheme by which boys from Public Schools and Grammar Schools may become articled pupils in the building industry in the same way as in the professions. This scheme is based largely on the experience of firms within the LMBA, which in recent years have been operating their own pupilship schemes.

Administering the two schemes is a Board of Administration composed of experienced master builders with a knowledge of the educational facilities open to boys leaving school and entering the industry. It will keep a register both of approved master builders and of students and pupils.

INDENTURED STUDENTS

Boys wishing to enter the building industry under the studentship scheme must apply for registration with the Board of Administration. They must have attained a standard of general education which will satisfy the Board of Administration, and, if accepted as registered students, will serve a minimum term of studentship of four years.

On taking up employment with an approved master builder the student will be required to attend part-time training at a technical college in order to study for the National Certificate in Building and subsequently the Licentiate Diploma of the Institute of Builders. At the end of his studentship, provided he has gained one or more qualifications, the student with initiative and purpose should be able to find ample opportunity in the building industry to follow an interesting and well-paid career.

ARTICLED PUPILS

Boys wishing to enter the building industry under the Articled Pupilship scheme must apply for registration with

the Board of Administration. Before registration they must have attained an educational standard covered by the General Certificate of Education with passes in five subjects at ordinary level or with passes in one subject at advanced and three subjects at ordinary level, of which two must be English and Elementary Mathematics, or must produce evidence of an equivalent standard of general education acceptable to the Board of Administration. They will then enter into articles with an approved master builder as employer, and will undergo a four years' course of training, both practical and theoretical.

Pupils will be required to attend full-time training courses at a technical college, and at the end of the courses to sit for the Higher National Diploma Examination. Each period of theoretical training will be followed by a period of full-time practical training. The final stage of the articles will be spent in full-time practical training with the employer, and the pupil will then be required to pursue on his own a part-time course of training leading to the Licentiate Diploma Examination of the Institute of Builders.

At the end of his training, given aptitude and personality, and provided he has gained the qualifications required, the pupil, it is believed, will be equipped to secure a remunerative and responsible adminstrative post with opportunities of advancement.

Students attending National Diploma Courses in Building may also be accepted for registration under the scheme, provided that they are prepared to undertake employment in the industry during college vacations.

NATIONAL SERVICE

The Ministry of Labour and National Service will normally grant deferment from National Service for the full training period necessary under these schemes, but individual application is necessary in every case.

The Board of Administration is constituted as follows: L. J. Holloway, FIOB, chairman; N. Stanley Farrow, MBE, MIOB, vice-chairman; Gerald A. Hill, OBE, FIOB, W. K. Laing, MA, MICE, D. E. Woodbine Parish, FIOB, and K. J. Pearce, TD, MIOB.

Full particulars of both schemes—outlined in a new booklet, "To-morrow's Builder: Training for Management"—with copies of the deeds of indenture, may be obtained on application to The Secretary, London Master Builders' Association, 47, Bedford-square, London, WC1.

OBITUARY

Arthur Appleby, LRIBA

We regret to announce the death on November 2, of Mr. Arthur Appleby, LRIBA, head of Messrs. A. Appleby and Sons, architects, of 9, Hounsfield Road, Sheffield 3. Mr. Appleby, who was 81, was the last surviving member of the practice founded by his father in 1860. He had been a practising architect in the city for 65 years until his retirement three years ago.

BUILDING EDUCATION

LMBA Conference Opened by Sir David Eccles

SIR DAVID ECCLES, Minister of Education, officially opened the sixth annual Conference on Education in the Building Industry called by the London Master Builders' Association, which was held on Friday afternoon last, November 11, at Apothecaries Hall, EC4. The President of the LMBA, Mr. L. J. Holloway, was in the chair.

The LMBA, he said, were the champions of education in the building industry. In education generally, the country had reached "a wonderful stage," when everyone was eager for education, and for the first time since the Middle Ages and the days of the guilds industry was really behind education. At the Ministry of Education they were trying to help the building industry in this matter through the technical colleges, and they were anxious to work out with the industry what was really wanted in education.

Sir David Eccles explained that it was necessary to take the technical student to the college; there were 11,000 full-time teachers of building subjects but 30,000 part-time teachers, and it was not reasonable to expect the latter, after a day's work, to travel to places away from the large centres of population.

Continuing, the speaker gave a warning that the building schools should not overload the curriculum. It was no use to try, for example, to cram too much into the head of a potential plumber. They had to remember the capacity of the student, and "cut out the dead wood in the courses."

Speaking of education for supervision, Sir David said that building was unique in that no other industry undertook work of such a large volume in money terms with so little supervision. And by supervision he did not just mean standing over the work—there was the question of sitting down to plan.

What were the incentives for training? In his view the best of all incentives for the industry was freedom. The Government were constantly being accused of taking building licensing off too soon. But until the building industry was put on its own to do as much as it could the incentive to adopt new methods was, in his opinion, simply not there.

It was true that there might be some overloading in the industry here and there, and this was largely due to the immense spurt of industrial building on top of the high rates of house and school building. The reason for this spurt was that, up and down the country, boards of directors had been waiting to see which way the general election would go before expanding their factories.

This, he suggested, was part of the price we had to pay for our electoral system—we could not have an absolutely steady rate of industrial expansion and our electoral system. Thus the Chancellor of the Exchequer was really being "battered by bouquets," and the building rush simply meant that people trusted him. They had got to see that in the future the industry attained maximum output in order to overcome the effects of "the damming up of demand" prior to the election.

Sir David Eccles ended his speech with a plea to builders to undertake their fair share of the urgent school building programme—which was £20m. bigger than ever before and was exempt from cuts—and not to neglect the schools for the more profitable types of building. It was right, he maintained, that the Ministry should carefully control the cost of new schools, but there was evidence that the building programme was in some cases lagging behind other types of building.

RECRUITMENT PROBLEMS

MR. H. J. SHELLEY, CB, OBE, Chief Inspector of Technical Education, Ministry of Education, who spoke on the National Certificate and Diploma Courses, suggested that it was necessary for the building industry to look to its needs for recruitment "very seriously indeed." There was no doubt about it, he said, "the battle for the bodies, especially when accompanied by brains, in industry generally, is getting very tough indeed."

PRINCIPAL D. A. G. REID, BSc(Eng), AMICE, of Brixton School of Building, gave an address on Sandwich Courses. These, he said, were for intellectually active students who would constitute the future top-level of the industry, and it was therefore important in the courses to provide a stiff intellectual test that would develop the student's powers to the full. The early periods spent in industry, he said, gave reality to the school courses, and the students had the advantage of a low entry age into industry. Such courses, he considered, offered the best opportunity of associating students of architecture and building in the same course. At Brixton, the sandwich course was out of the experimental stage, but there was, of course, a great deal of development still going forward.

After the tea interval, MR. L. J. HOLLOWAY outlined the Association's new Pupilship and Studentship Schemes. The booklet on this subject, just issued by the LMBA, was, he said, the first attempt on the LMBA's part to bring things into line, but it should not be thought that they were hidebound by the regulations now laid down. Mr. Holloway invited criticisms of the handbook.

A discussion followed on items submitted. On the question of executive development courses, MR. D. E. WOODBINE PARISH said that he would like to see set up, in the future, a "Staff College" for the whole of the industry, where builders, architects, surveyors and so on could meet to discuss at a very high level problems which at present were not discussed. MR. GERALD HILL suggested that at the age of 30 it was experience that a man needed to gain, not education. We could overdo education when it reached a certain level; it must go hand in hand with experience. MR. N. S. FARROW thought that more facilities were needed for week-end training courses. There was a crying need for some sort of college for this type of course.

Building Wages

IS GRADING A SOLUTION?

(*By a Labour Correspondent*)

THE decision of the Joint Executive Committee of the constituent bodies of the National Federation of Building Trades Operatives to add 2d. per hour to the 4d. claim which they have already decided to place before the National Joint Council in January gives added interest to this examination of the background to the claim. Not of least interest are the comments made on the grading theory which has been advanced in some quarters as a possible alternative to bonusing-on-output systems. The views expressed are not necessarily those held by this newspaper.—ED.

THE decision of the joint Executives of the Building Unions to table a claim for a 4d. per hour increase in the standard wage rate had barely been taken when Mr. Butler announced his proposals for ending the post-war building boom. The two events may prove to be singularly complementary; in fact, the unions have already responded by revising the original claim to one of 6d. per hour.

The wage claim was, of course, inevitable after the major move resolved upon by the Confederation of Shipbuilding and Engineering Unions, to say nothing of the numerous other claims in transport and elsewhere. It would be asking too much of the builders' leaders to hold back virtually alone among the organised workers of the country. And even if this were possible such saintly restraint has not been encouraged by the obvious bounding prosperity of the industry during the past 12 months.

PROFITS INCREASE

Few firms have avoided increased profit and any sizeable concern would have to be downright anæmic to have sustained a trading loss. Fortunately the even sharper increases enjoyed by the materials side do not intervene as a bargaining factor: the claim is upon the contractors, not the suppliers. Even the fact that many firms are financially involved with materials manufacture and distribution is not admissible.

To this extent, then, the employers themselves have been the originators of the application. Yet withal, it is an open secret that at least some of the TU leaders had hoped for a "free year" on the wages front so as to enable the NJC to have time in which to look at other and equally important questions. These include the need for a close examination of incentive bonus with a view to its inequity and malpractices being brought under control (it has to be borne in mind that in 1951 the Council decided that "a further period of experiment" was necessary) and the issue of an industrial pensions scheme.

Viewed from this perspective, the wages problem is an obtrusion, and both sides could benefit by its absence. There could, for instance, be an overhaul of many features of the existing agreement, a pruning and streamlining of working rules which have become either obsolete or unwieldy. Travelling expenses (not the special Metropolitan arrangements) have been covered with a form of words which, with varied additions and amendments, is now extremely difficult to interpret. Even the professional secretaries of employers and operatives sometimes find difficulty in applying the rules to concrete circumstances and have been known to differ. To the site foreman and shop steward they are often unintelligible.

One has to appreciate, of course, that any working rule is not the result of precise individual thinking with a clinical exactitude of phrase but, rather, the outcome of many hours of hard bargaining and is in effect a compromise, both sides yielding somewhat from their original position. The final terminology is therefore restricted in its attempt at simplicity by these considerations: it has to be acceptable.

Be that as it may, we are once again involved in the wages issue and the consequent January jactitations of London, W1. There is no reason for dismay in this; if prices fluctuate, so must wages; indeed, the basis of the present agreement gives recognition to flexibility with the sliding-scale clause. There should also be acknowledgment that increased efficiency and output ought to have some consequence in increased earnings. There can be no meaning to exhortation for progress unless the aim is higher standard of living. This again has been afforded an oblique recognition by the incentive bonus agreement.

The automatic adjustments to the wage rates each year are made by a gearing to the Government retail prices index [RPI]. An average is struck of the monthly figures over the previous year and for each three points rise or fall there is ½d. per hour increase or decrease. The gearing is not in equal ratio because if the RPI is taken as a percentage expression of the base year (1947), the sliding scale provides a points shift of approximately half of the real rise or fall. Thus an accurate tie-up to the Government figures would produce nearly 1d. per hour for each three points.

BARGAINING LEEWAY

Both sides must be aware of this discrepancy, but it is sometimes defended on the grounds that some bargaining leeway must be left to the negotiators. In point of fact, the sum of the increases since 1947 to the base rate—together with the sliding-scale increases—approximate very closely to the actual total rise in prices as pronounced by the Ministry of Labour index. We have therefore arrived at almost the same wages rates as if the gearing had been balanced.

Current rates, then, represent a similar purchasing power to eight years ago, and there has been little or no improvement in standards of living for those operatives whose earnings are confined to the prescribed hours and plain time rates. The improvement for others is wholly due to incentive bonus, plus rates (the lazy way of offering incentives) and overtime. Such a conclusion must lead to the view that the industry has already established differentials according to the nature of the work, a position which neither side has willingly approached. But the economic forces at play have been too great to resist the development; shortages of skilled labour and the distant siting of many construction jobs are probably among the chief reasons.

The problem of the standard wages rates has become less simple in these circumstances, for while an increase may be urgently needed by those on "the bare rate" it has less significance for others.

DISTORTING THE PICTURE

It is difficult to assess the proportions, but there is not much doubt that the number of operatives employed on maintenance and repair and small construction exceeds 50 per cent. of the whole, and there is similarly little room for question that the vast majority of these are pegged to the standard rates. Therefore, to express earnings per operative at an average of the total distorts the real picture.

There is another factor which has grown larger in post-war years: this is the expansion of direct labour over a wide field. In addition to local authorities (with a building labour force of 60,000), there are extensive numbers employed by the health services, nationalised industries and private industries. All these have separate agreements, but the wage rates invariably follow those prescribed by the NJC. Building employers are therefore unfortunately placed in the position where they are called upon to legislate for operatives who are not in their employment; a responsibility which it is unfair to ask them to shoulder.

The question arises as to whether the industry can "afford" a further increase at the present time and, here again, we are faced with wide incompatibilities. The small business relying on domestic maintenance and repair has reason for anticipating consumer resistance, and it is ridiculous to expect a considerable wages increase to be absorbed from profits in this sector. The medium-sized concern does not view the issue so seriously and currently is probably more concerned with the increase in the cost of overdrafts, or, indeed, the difficulty in obtaining credit. The large-scale contractor obviously views present wage rates as inadequate by virtue of the substantial bonuses he allows. But all will feel constrained to oppose the claim on grounds of principle.

Thus, behind the generalisations with which both sides usually state their cases there lies considerable complexity. Nevertheless, there appears to be unanimity in the maintenance of standard

wage rates, and the principle is regarded by most as the central stabilising factor of the industry.

IS GRADING POSSIBLE?

In recent years the concept of grading operatives according to skill and experience has been resuscitated. This has been advanced particularly by spokesmen of the profession (although it is noteworthy that professional fees are rigidly uniform) and the argument runs thus:—

"It is wrong to assume that all operatives have similar ability, and the standard wage rate inflicts injustice on those who are superior in knowledge and skill. In practice both pace and quality are reduced to the lowest common denominator and latent possibilities in men are suppressed because there is no advantage in money or recognition to be gained by ambition.

"There should be, say, three grades with a 3d. per hour differential between each. Operatives would then be encouraged to give of their best and would vie with one another for the prestige which the top grade would vouchsafe. The criteria of assessment should include: skill, technical knowledge (educational certificates), experience, and personal conduct.

"Such an arrangement would release the best elements in labour forces from the existing dead uniformity, which is depressive and restrictive, and would bring new life and zest to the prosecution of actual work tasks. Through the constant selectivity engendered the right degree of competition would be injected which at present is lacking."

Underlying all this is the assumption that full employment is to continue indefinitely, for it is obvious that keen competition for jobs would produce most of the aims mentioned without need for other incentives. If such a scheme were adopted and 12 months later there were 10 per cent. unemployment, it would be unnatural to expect many employers to pay above the lowest grade. The possession of a regular job would be all the "prestige" which a first-class operative could claim.

However, accepting for the moment that serious unemployment will not return, there remains an ambiguity which the Unions are bound to view with serious attention: this is the central question as to who should grade whom. This has been boldly faced by some advocates of grading by the firm assertion that only the employer can properly exercise the responsibility for such decisions. This solution has the merit of simplicity, but it ignores the fact of mobility of employment and the consequent need for repeated assessment of the same operative by different employers. It is neither feasible nor logical to expect each employer to wear the same spectacles when measuring the value of an operative, and therefore in practice the desideratum of prestige would lose much of its force if it remained elusive.

HOW TO JUDGE?

If grading is wholesome and efficacious, it is essential that some agreed method of judging worth be established before the Unions could be persuaded seriously to consider the issue, for without joint control it would be tantamount to removing a part of the wage rate from the arena of collective bargaining. It is unreal to lose sight of the fact that the Unions regard as axiomatic that individually the operative is hopelessly outmatched when negotiating with his employer, and that it is only through unity with his fellows that the balance is redressed.

With this in mind, the possibility suggests itself of independent courts—such as the existing Local Joint Committees—composed of equal numbers of employers and operatives and charged with the single task of grading according to a national formula. But the further one looks into the details the more hideous become the difficulties. The very qualities of one man which equip him in, say, high-class joinery could quite well place him in the lowest grade on large-scale formwork. Thus the *type of job* could well determine the *type of grading*, a position leading to hopeless confusion.

This is not to say that the difficulties are insuperable, but they are certainly much more formidable than is sometimes assumed when grading is discussed. The usual canvassing is superficial and ends are confused with means.

As has been said, a rough-and-ready kind of grading has already gained a foothold in the national pattern of earnings. This is, in the main, of an extra-constitutional character and, moreover, is conditioned by the location and category of the job; and, perhaps most significant of all, it is essentially impermanent.

It is in this perspective that the writer holds the (perhaps somewhat wistful) view that the NJC could with better advantage to both sides seriously tackle the question of incentive bonus, and its integration on agreed price ratios to the existing agreement, accompanied by realistic in lieu bonus rates, than endure the unsubtle and sometimes brutal annual collisions on the base rate. Such a setting is the *sine qua non* for any uninhibited appraisal of grading according to skill.

BRICK SHORTAGE IN MIDLANDS

Housing Scheme Delayed

SHORTAGES of bricks are holding up completion of over 300 houses in Sedgley, and it is reported that one builder has laid off 50 per cent. of his workers. The surveyor, MR. W. M. JONES, said: "The situation in regard to the supply of bricks has been getting steadily worse for the past six months. Now it is nearly desperate. The builders are having to haunt the brick yards trying to get hold of whatever bricks become available."

A Sedgley builder, MR. A. B. TOMLINSON, who has contracts in hand for 227 houses for Sedgley Council, confirmed this. "We've had to lay off 50 per cent. of our labour forces because of the shortage of bricks. We've put down foundations for some houses and have had to fence them round and leave them."

IN PARLIAMENT

BUDGET DEBATE: Opposition Advocate Re-introduction of Building Licensing

[*From our Parliamentary Correspondent*]

WHEN the Finance Bill came up for second reading in the Commons on November 8 the Opposition, continuing their attack on Mr. Butler's financial policy, again repeated their suggestion—heard during the discussion on the Budget—that the Government should reintroduce building licensing.

This time, MR. HAROLD WILSON, a former President of the Board of Trade, said he believed that it would have prevented the Chancellor from increasing purchase tax and instituting the credit squeeze. "If," he said, "he had kept a firm grip on the building situation this inflation could have been controlled without any question of a purchase tax on essentials: without any of the excesses, and the unpredictable, and in many cases harmful, effects of the credit squeeze."

The Chancellor ought to have reintroduced licensing to have cut out inessential building. Mr. Butler had not answered the challenge made on October 28, but had said 8 per cent. was outside the industrial range. He did not deal with the number of petrol stations, public houses and motor showrooms which were being built. It was probable that some of those were included in the sacrosanct figure of industrial development. The Opposition wanted to know how much of that building, much of which they welcomed, was for export and the strengthening of the industrial base of the nation, and how much was inessential.

SIR HENRY D'AVIGDOR-GOLDSMID said that members who were connected with local authorities and had experience of their workings would know how disappointing it was to those authorities that 10 years after the war projects of many sorts must be indefinitely shelved. Whether it was community centres, health centres or other projects which were classified as not strictly necessary they carried with them the hopes and interest of many inhabitants, and every postponement was a damper to the enthusiasm in which they were conceived.

Members who had the privilege of representing industrial constituencies would not get much of a cheer for the proposals of the Minister of Housing and Local Government when they met their constituents, many of whom lived in pathetically overcrowded conditions. But Sir Henry was firmly of the opinion that the hardships would be accepted by the majority of the people with cheerfulness and resolution because the proposals contributed to reaffirming the stability of currency on which basically the entire structure of our national life depended.

SIR EDWARD BOYLE, Economic Secretary to the Treasury, replying to the debate, said that it would be impossible to restore building controls for work such as cinemas and public houses—and, as the Chancellor had pointed out, there were only three cinemas now being built—without restoring controls for office building as well. He would have thought that a considerable increase in office building was a natural thing to go

alongside an increase in productive investment, which all members desired.

MR. WILSON said that Sir Edward had not got the point that the essence of building licensing was that one could say "yes" to the applications for productive investment, whether industrial or commercial, and "no" to the public houses, the cinemas, petrol stations, offices for football pools and the various inessential forms of commercial work. By so doing the promotion of the export drive could be speeded, and where necessary there could be a dampening down.

SIR EDWARD BOYLE retorted that he did not believe that it could be worth while restoring the elaborate system of controls to deal with such a small proportion of the national building. The Government believed in taking direct measures to deal with the situation at home.

Road Construction Programmes

THE Minister of Transport was questioned in the Commons on November 9 about the progress of work on some of the road construction programmes which he has announced would be started in this and forthcoming financial years.

MR. BOYD-CARPENTER said that the Loughton by-pass on A.5 would be about two-thirds of a mile and included a bridge and slip roads. Work started on August 9, 1954, and was expected to be completed by April, 1956. The work was being carried out by contract and the contractors informed him that it had been delayed by bad weather last winter.

MR. ERIC JOHNSON said that the Alaska Highway, which was 1,600 miles long, had been completed in seven months. Could the Minister do anything to ensure that this two-thirds of a mile in Britain was completed rather more rapidly?

MR. BOYD-CARPENTER said that the Alaska Highway was a long way away. The Loughton by-pass involved considerable construction of embankments and a bridge, and the local authority thought that a contract date terminating in February, 1956, was reasonable. Because of bad weather last year the contractors would be about two months late with the contract.

MR. GRESHAM COOKE asked when the construction work on the Cromwell-road extension was started; what percentage of the work had already been done; and when he hoped that the whole scheme would be completed.

MR. KENNETH ROBINSON asked why the extension would not be completed until 1959; and to what extent the limitations were financial or constructional.

MR. BOYD-CARPENTER.—Construction work started in April this year. On a cost basis about 5 per cent. of the work has been done. I cannot at present give a precise date for completion of the whole scheme, sections of which will be brought into use separately as soon as they are ready.

MR. GRESHAM COOKE asked the Minister whether he had accepted the decision of the London County Council not to provide dual-carriageways on a section of Cromwell-road Extension now under construction between Hammersmith Bridge-road and the existing dual-carriageways of West Cromwell-road; and what action he proposed to minimise the traffic delays which were likely to be caused.

MR. BOYD-CARPENTER, in a written reply, stated.—I have accepted the London County Council's views on the initial layout of this scheme. The layout east of Hammersmith Bridge-road will be such that it could be further improved in due course, including the provision of a viaduct for through traffic, should the conditions warrant it.

The draft scheme for that part of the London to Yorkshire motorway which would run from the St. Albans by-pass to near Ashby St. Ledgers was published in the week beginning September 19. The scheme for the St. Albans by-pass would be published on November 21. He had appointed Sir Owen Williams and Son as consulting engineers to prepare the engineering details of the road and to supervise the carrying out of the work which would be done by contract. He could not at this stage forecast a completion date for the motorway.

Big PO Programme

THE construction of 200 new telephone exchanges and 100 new postal buildings, including those for wireless, are envisaged in the expansion programme for the Post Office services, some details of which were given in the House of Commons on November 11 by DR. CHARLES HILL, the Postmaster-General.

He was moving the second reading of the Post Office Telegraph Bill which seeks to authorise the raising of £175mn., and said that the money would be used for Post Office development, including sites and buildings. Allowance had been made for the Government's policy of restraint in capital expenditure, and the sum available for sites and buildings in the next three years would be £27mn., in the proportion of two-thirds for telephone buildings and one-third for postal buildings.

The suspension of building during the war and its restriction since had created a demand which outran the current capacity of existing buildings. Many existing premises were out-moded and decrepit, and an increased rate of building was planned for 1956-57 when a start would be made on the new telephone exchanges and postal buildings. The Government would concentrate on new exchanges to overtake the growing demand.

Automatic trunk exchanges would be built in Birmingham, Bristol, Carlisle, Chester, Leicester, Manchester, Middlesbrough, Nottingham, Portsmouth and Swansea in the next four years. This was the forerunner which would in future enable subscribers to dial their own trunk numbers direct, and the first installation would be made at Bristol in 1959.

The Bill was read a second time.

Rural Water Supplies

THE Rural Water Supplies and Sewerage Bill which increases from £65mn. to £105mn. the money available in England, Wales and Scotland for schemes for water supplies and sewerage, was read a third time in the Commons on November 10.

During the last 11 years the various Acts governing the provision of money for such schemes have authorised £45mn. in England and Wales and £20mn. for Scotland, and those sums will be fully pledged by early next year. For that reason the Government have decided to increase the amount available by £40mn. which will last for another five years.

According to MR. WILLIAM DEEDES, Parliamentary Secretary to the Ministry of Housing and Local Government, £15mn. worth of water schemes and £12mn. of sewerage schemes had been completed since 1944, and those sums had been totally expended. The total value of grant-aided schemes in the current year—up to April, 1956—is likely to be £17mn. At the moment schemes in progress amount to £40mn. for water and £28mn. for sewerage in England and Wales. In Scotland schemes amounting to £6mn. for water and £1,700,000 for sewerage have been completed, and those valued at £13mn. for water and £3mn. for sewerage are in progress. The amount of work in hand was the highest since the war.

Many schemes are urgent and cannot be postponed without serious consequences in their localities, and any scheme which the Minister had promised to authorise this year will be allowed to proceed. The programme for 1956-57 is, however, subject to wider considerations, which affect similar programmes involving heavy capital expenditure. Within the next few years the ratio of water and sewerage schemes will be reversed with the sewerage accounting for about 60 per cent., and within the next 15 years it is estimated that all the sewerage schemes for most rural areas will have been authorised. It is hoped if the present rate of progress is maintained that in eight years all schemes to supply water will have been authorised except to the smallest villages and isolated premises.

OTHER BUSINESS

PRIVATE MEMBERS' BILLS

NINETEEN Bills were presented by private members in the House of Commons on November 10, and read a first time. One, by Mr. Sparks, seeks to repeal the relevant section of the Local Government Act, 1929, and the Act for Scotland which imposed industrial derating.

Mr. Thornton-Kemsley introduced the Local Government (Street Works) (Scotland) Bill, which authorises local authorities in Scotland to contribute to the expenses incurred by frontagers and others in connection with the construction, maintenance or making up of private streets, new streets or footways.

Other measures included one to make provision for the enfranchisement of residential property under long leases and another to amend the basis of compensation for land acquired compulsorily under Act of Parliament.

POSTPONED DEMOLITIONS

On October 25 MR. A. J. IRVINE asked the Minister of Housing and Local Government the approximate number of houses in England and Wales, to the latest convenient date, whose demolition had been postponed by local authorities under the powers conferred on them by Section 2(1) of the Housing Repairs and Rents Act, 1954. He also asked whether the Minister would give the approximate number of houses in England and Wales, to the latest convenient date, which local authorities had purchased in lieu of making demolition orders under Section 3 of the Housing Repairs and Rents Act, 1954.

MR. DEEDES, Parliamentary Secretary, Ministry of Housing and Local Government: The information asked for is not at present available. Details of the number of

unfit houses to be retained in temporary use by local authorities will, however, be published as early as possible next year in a revised form of the quarterly housing return.

OFFICE BUILDING, LONDON

MR. HUNTER asked the Minister of Works the approximate total value of office building under construction in London at present.

MR. NIGEL BIRCH, replying on November 8, stated: It is estimated that the annual rate of office building in London at present is about £20m.

MR. HUNTER asked whether the amount of office building was causing a shortage of materials and labour on housing estates in London and Middlesex.

MR. BIRCH said that the only shortage of building material was of reinforced steel rods which did not affect housing very much. No doubt the demand for labour was competitive to some extent.

INTEREST ON HOUSING LOANS

MR. SWINGLER asked the Minister of Housing and Local Government how many local authorities had expressed to him their desire for a lower rate of interest on housing loans; and what reply he had made.

MR. DUNCAN SANDYS in a written answer on November 8 stated: Since the Public Works Loan Board rate increase to 4¼ per cent. on July 9, I have had representations from nearly 60 local authorities. They have been told that it is Government policy that they should pay the current market rate.

HOUSING COSTS

MR. WILLIAM ROSS asked the Secretary of State for Scotland if he would give the estimated annual cost of building and maintaining a house, the capital cost of which, £1,550, was borrowed at current Public Works Loans Board rate of interest.

MR. JAMES STUART, replying on November 8, stated: The loan charges on this capital cost together with the cost of maintenance and management would amount to about £93 a year for 60 years.

DELAYED TENDERS

MR. HARRY HYND asked the Minister of Housing and Local Government what proposals he had for a higher rate of housing subsidy to apply to houses whose construction had been delayed because his department had insisted on fresh tenders or alterations in specifications.

MR. DUNCAN SANDYS in a written reply on November 8 stated.—I assume Mr. Hind is referring to the position which will arise when the Housing Subsidies Bill becomes law. After the Bill has received a second reading, I propose to issue to local authorities a circular dealing among other things with this point, and I will send a copy to him.

SLUM CLEARANCE TARGET

MR. MAHON asked what was the annual target for slum clearance, expressed in terms of units of accommodation, which the Government had set for achievement during the present Parliament.

MR. SANDYS.—Our immediate aim is to step up the slum clearance campaign to secure, as soon as possible, the rehousing of at least 200,000 people a year, involving the annual provision of about 60,000 new dwellings for this purpose.

WHITEWASH FOR SLUMS

MR. OSBORNE asked the Minister if, in future, he would refrain from using the term "slum clearance" in official correspondence and publications, as many people living in obsolete houses now due for demolition were excellent citizens and resented the imputation that they are slum dwellers.

MR. SANDYS.—The same thought has often occurred to me. I agree that "slum" is an unpleasant expression. The full statutory official designation of slum houses is "houses which are unfit for human habitation or by reason of their bad arrangement, or the narrowness or bad arrangement of the streets, dangerous or injurious to the health of the inhabitants of the area." This is most cumbersome and scarcely any more attractive. However, I should be very glad to consider any alternative suggestions.

SCHOOL BUILDING, SCOTLAND

MR. CARMICHAEL asked the Secretary of State for Scotland if he would advise local authorities that they could go ahead with their school building programme; and if he would state the amount of capital which had been authorised to each local authority for this work.

MR. STUART.—On November 1, the Under-Secretary made it clear that subject to the usual process of approval of individual projects education authorities are expected to go ahead with all school building projects which are regarded as essential. It is not the practice to give each education authority a ration of capital within which they must work and provision is being made for a total educational building programme of at least £11m. in 1956-57 compared with £6m. in 1954-55.

SAND AND GRAVEL SUPPLIES

MR. WILLIAM SHEPHERD asked the President of the Board of Trade whether he had yet received the report of the Monopolies and Restrictive Practices Commission on the supply of sand and gravel in central Scotland.

MR. PETER THORNEYCROFT stated on November 10.—Yes. I received this report on November 4. It will be laid before Parliament in due course.

PLUMBERS' WORK

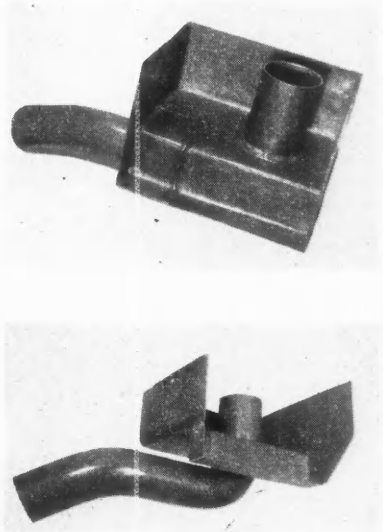
Leadwork Competition

THE interest shown in their coronation year leadwork competition has prompted the Lead Sheet and Pipe Council to hold a similar competition this year as a practical expression of their wish to encourage good craftsmanship. Technical schools throughout the country were invited to submit the work of their students on a test piece, the students working singly or as a team under the direction of their teacher.

The test piece took the form of part of a 12-in.-wide box gutter with a 5-in. upstand and a 3in. drip. The general standard of work shown by the entries received was remarkably good, and it was difficult to choose the best. The total prizes awarded amounted to 50 guineas and the winners were:—

Area No. 1: Willesden Technical College. Teacher: G. J. Nash. Student: F. J. Pruckner.
Area No. 2: Poole College for Further Education. Teacher: W. Newbrook. Students: D. E. Brown, J. W. B. Christopher, P. G. Wentworth.
Area No. 3: Wolverhampton and Staffordshire Technical College. Teacher: A. Johnson. Students: P. Hickman, J. Tooth.
Area No. 4: York Technical College. Teacher: C. S. Wright. Students: E. Smith, D. Grainger, L. Chilton.

From the above area winners the final award was made to the entry from Willesden Technical College. The presentation to the winners of the final award will be made on the stand of the Lead Sheet and Pipe Council at the Building Exhibition, Olympia, London, on November 22, by Mr. C. H. Aslin, CBE, President of the Royal Institute of British Architects. The winning entry will be on view on the council's stand throughout the Building Exhibition.



Two views of the prizewinning entry submitted by F. J. Pruckner of Willesden Technical College

Travelling Scholarship

THE WORSHIPFUL COMPANY OF PLUMBERS have announced the offer of two travelling scholarships, to the value of £100, to be awarded in 1956 and every second year thereafter. Generally, the intention of the scheme is to select registered plumbers who prove themselves educated craftsmen qualified to take executive positions in the craft of plumbing, or teachers of plumbing. Candidates must be not less than 21 and not more than 30 years of age on January 1 of the year of entry. Each successful candidate will be required to visit a town or towns or district of importance in England or abroad for the purpose of studying plumbing conditions.

The examination will be set and judged by a joint committee of the Court of the Company and the General Council for National Registration of Plumbers. The names of candidates must be received on or before January 30, 1956, and must be sent to the Clerk, Worshipful Company of Plumbers, 4, College-hill, London, EC4, from whom further details may be obtained.

LAW REPORT

Chartered Surveyor Awarded £50 Damages in Libel Action

QUEEN'S BENCH DIVISION
BEFORE MR. JUSTICE BARRY

PUSSER v. BAWTREE

MR. DANIEL ROBERT PUSSER, ARICS, of Honor Oak-road, Forest Hill, London, SE, was awarded £50 damages by a jury in the Queen's Bench Division on November 4 against a former client who, he claimed, had sent identical telegrams to his private and business addresses accusing his firm of a "gross swindle."

Mr. Pusser had sued Miss Agnes Elizabeth Bawtree, of Brixton Hill, London, SE, alleging libel in the telegrams sent in October, 1953, and in a letter to a member of the Council of the Property Owners' Protection Association. Miss Bawtree denied the allegations and pleaded qualified privilege to which the plaintiff replied that if there was privilege, she was actuated by malice.

MR. D. BULGER told the jury that Mr. Pusser, for whom he appeared, was a surveyor of long standing and practised as Messrs. J. Pusser and Co. He was also a member of the Institute of Registered Architects and a council member of the Property Owners' Protection Association.

In 1946, Miss Bawtree's home was being repaired under the War Damage Commission scheme. She became dissatisfied with the way the work was being carried out and asked the help of the Property Owners' Protection Association.

The Association put her in touch with Mr. Pusser and in 1947 his son inspected the work and prepared schedules. Various other work was done for the defendant until, in May, 1949, she made it clear she did not want Mr. Pusser's services any longer. He never received any fees for the work but for the next three years heard once a year from different solicitors instructed by Miss Bawtree claiming the work had been done negligently. Each time a reply was sent denying the allegation and setting out Mr. Pusser's case and nothing more was heard.

Then, continued counsel, two identical telegrams arrived "out of the blue" in October, 1953. They were sent by Miss Bawtree to Mr. Pusser's private and business addresses and read: "Your firm passed for payment work not done properly and some work not done at all. This was a gross swindle and your association refers me to you for settlement."

In the same month Miss Bawtree sent a letter to Mr. J. I. Hamilton, a council member of the POPA. Mr. Pusser claimed this letter was defamatory and accused him of dishonesty and incompetence.

At the close of the plaintiff's case, MR. JUSTICE BARRY ruled that the letter to Mr. Hamilton was privileged. But no privilege attached to the two telegrams.

MISS BAWTREE gave evidence that she sent the letter to Mr. Hamilton after he had told her on the telephone that if she gave him her complaints he would put them before the council of the POPA. The telegrams were sent after Mr. Pusser had finally refused to meet her at the POPA offices. She denied that she had been actuated by malice and contended that her actions were directed towards her desire to put her grievances before the POPA council.

In his summing-up, MR. JUSTICE BARRY said the jury should bear in mind that the publication of the telegrams was of a very limited kind but must have been seen by certain Post Office officials.

As to whether the letter was defamatory, his lordship need say very little. If the jury concluded that it was, then they had to consider the much more difficult question whether the letter, written on a privileged occasion, was written maliciously. The question was whether Miss Bawtree was only trying to ventilate a genuine grievance which she genuinely thought she had against Mr. Pusser or whether she allowed her feelings to get so much out of control that her real motive was an endeavour to harm Mr. Pusser and injure his reputation.

After a retirement lasting an hour, the jury found that the two telegrams were defamatory and awarded £50 damages in respect of them. They found that the letter to Mr. Hamilton was defamatory but added that Miss Bawtree was not actuated by malice in writing it.

The judge ordered Miss Bawtree to pay half Mr. Pusser's costs.

LMBA

South-Eastern Area Prizegiving

THE South-Eastern Area prize-giving for 1955 took place on November 8 at the Black Prince Hotel, Bexley, when prizes were presented by Lieut.-Col. K. J. Pearce, TA, chairman of the London Regional Joint Apprenticeship Committee, and a member of the area, to 13 students attending the Bromley College of Art and 10 students attending the Erith Technical College.

The proceedings opened with a hearty welcome to the prizewinners and guests by the area chairman, Mr. J. J. Jagger (J. J. Jagger and Co., Ltd.), followed by the prize presentation and address by Colonel Pearce. A vote of thanks to the area was given by Mr. W. T. Harrison, BSc. (Hons.), Lond., principal of the Erith Technical College, on behalf of the colleges, and by Mr. J. B. Bourne, a student at the Bromley College of Art, on behalf of the prizewinners. Mr. P. J. M. Green, MC (George Green (Beckenham), Ltd.), thanked Colonel Pearce and the other guests for their attendance and support in making the function and lunch a memorable occasion.

SLUM CLEARANCE

Ministry's Estimate of Houses to be Demolished in Next Five Years

THE Ministry of Housing and Local Government, as briefly reported in our last issue, has published a summary of returns and proposals submitted by local authorities under the Housing Repairs and Rents Act, 1954 (Cmd. 9593, HMSO, 3s. 6d.). It is estimated that of the 12,935,177 permanent houses in England and Wales 847,112 are unfit, and it is proposed to demolish 375,484 of them in the first five years of slum clearance.

The Ministry states that the returns represent the best conclusions which local authorities have been able to reach in the light of their local circumstances. There is, however, considerable variation in the information on which they are based: some local authorities have been able to carry out a detailed inspection whereas some have had to rely on broad estimates.

The proposals made by local authorities for dealing with the unfit houses in their areas require the Minister's approval and may be approved by him with or without modifications. A copy of the approved proposals will be deposited at the offices of the local authority.

Most local authorities have felt it necessary to call attention to certain assumptions on which their proposals have had to be based, for example, availability of land, sufficiency of staff, etc. Table 1, reproduced below, summarises the position for England and Wales, separately and as a whole.

Column 3 of the table shows the local authorities' estimates of the number of houses in their areas which are unfit for human habitation and which are suitable for action under Section 11 or Section 25 of the Housing Act, 1936. Column 4 shows the number of houses to be demolished in the first five years as a result of demolition orders made under Section 11 of the Housing Act, 1936. Column 5 shows the number of houses included in or to be included in clearance areas which will be demolished by the local authority or the owners in the next five years. Column 6 shows the total number of houses to be demolished in the five-year period. Column 7 shows the number of unfit houses in clearance areas to be retained for temporary accommodation by the local authority. These are houses which cannot be demolished in the first few years but are, or can be made, capable of providing adequate temporary accommodation.

In the case of the Metropolitan Boroughs, the London County Council are by agreement sharing the clearance of the slums. The division of the programme is shown in another table in the report.

TABLE 1
SUMMARY OF RETURNS INCLUDING PROPOSALS SUBMITTED BY LOCAL AUTHORITIES IN ENGLAND AND WALES

	Total number of permanent houses in area	Estimated number of unfit houses	Action in First Five Years			
			Number of houses to be demolished			Number of houses to be retained for temporary accommodation
			Individual houses	Houses in clearance areas	Total number of houses to be demolished	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
England	12,186,258	807,064	94,934	260,035	354,969	87,566
Wales	748,919	40,048	8,156	12,359	20,515	712
Total	12,935,177	847,112	103,090	272,394	375,484	88,278

CLIMBING CRANES

Economies in the Construction of Tall Buildings

By J. F. EDEN, BSc.(Eng), MIMech.E,
and C. N. Craig, MA, ARIBA

CLIMBING cranes, which are finding fairly widespread application on the Continent, particularly in Sweden, Denmark and Russia and more recently in France, are likely to prove of increasing interest in this country now that more buildings between 10 and 20 storeys in height are being erected. This type of crane is essentially similar to the rail-mounted tower crane except that it has no travelling carriage; it is mounted at a fixed position within the building itself. Collars fitted to the mast allow the crane to be raised as the building is erected.

Because of their fixed position, climbing cranes are particularly suitable for buildings which are compact on plan such as the "point" blocks of flats which form a substantial and growing proportion of the high buildings being erected in this country. Nevertheless, there seems no reason why this type of crane should not also be used on "slab" blocks; in fact, on the Continent, the use of several cranes along the length of such a building is not uncommon.

THE CRANE

Climbing cranes are provided with individual electric motors for hoisting, for travelling a crab along the horizontal jib, and for slewing a full circle, but there is no travelling undercarriage. The mast, which is of uniform cross-section and does not turn with the jib, rarely exceeds 50 ft in height. The horizontal jib and the counterweight are mounted at the top of the mast, and the driver's cabin is immediately underneath within the stationary mast. Normally all machinery, with the exception of the hoisting gear, is housed at the top of the mast above the slewing ring. The hoisting motor, winch and drum may be housed within the mast, or, alternatively, may be fixed as a separate unit at ground level.

When building starts, the crane is erected in a central position on a prepared concrete base in the foundations; the erection procedure, which differs slightly with different makes, is similar to that normally employed with rail-mounted tower cranes. Owing to the absence of central ballast and travelling gear, there is less weight to be moved, and the smaller types can be erected in a day by three or four men. Fig. 1 shows a typical crane with a 40-ft mast erected at ground level. The crane is then used to erect the building around itself up to a height of about 30 ft. Holes are left in the floors for the mast to pass through, unless advantage can be taken of a convenient lift or stair well.

Special collars are fitted round the mast for lifting the crane up the building. Two of these, which are shown in detail in Fig. 5, are mounted on bearers fastened to the two adjacent topmost floors and span between load-bearing walls, main beams or other strong points (see. Fig. 2). These serve to transfer to the building the vertical and lateral loads acting on the crane, and they also form guides through which to lift the mast.

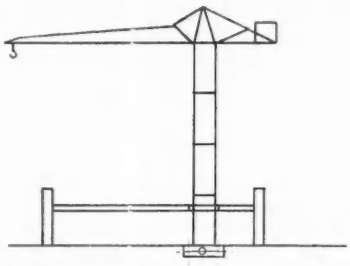
A typical method of lifting a small crane is shown in Fig. 5. A wire rope is fastened to the top collar, passed under a pulley at the base of the mast and returned to a hand winch or other lifting device, by means of which it can be raised to the position shown in Fig. 3 after being detached from its foundations. When at the required height, the tower is wedged in the collars and bolted or pinned to them, and the crane is again ready for use. Subsequent lifts are undertaken in the same way, a third collar being mounted above the other two, and the lowest one freed for subsequent use, as shown in Fig. 4. Each lifting operation takes about two hours. When the building is completed the crane is dismantled on the roof and lowered piecemeal to the ground. If desired, the crane's hoisting winch and motor can be left anchored to the foundations, thus somewhat easing the problem of removing the crane after the building is finished.

The crane, of course, imposes vertical and lateral loads on the building and, with the larger models of this type of crane, the building may have to be specially designed with strong points to receive it. However, the small climbing cranes, such as are now being used in France, require not so much special provision in buildings of normal construction; it is sufficient merely to spread the load to adjacent beams or walls.

Generally, all that would be necessary would be to ensure that the bearers under the collars spread the loads to main floor beams or load-bearing walls. The crane should not, of course, be anchored to green work and, where the floors are of *in-situ* concrete, it would be as well to avoid anchoring the crane to the most recently cast floor.

LOADS ON BUILDING

The maximum loads transferred to the building by a typical small crane, with a capacity of 15 cwt at a maximum reach of 40 ft., are given in Fig. 6 and indicate the extent to which special provision may be necessary. The maximum vertical load on a floor amounts to 5.4 tons. Both the load on the hook and the pressure of the wind cause turning moments which produce lateral loads in opposite directions on the two collars, their extent being inversely proportional to the distance between the collars. In the example shown in Fig. 6, these amount to a maximum of 4.2 tons when the crane is in service and supported on adjacent floors 8 ft. 6 in. apart. If the collars are mounted two floors apart, the lateral loads are halved.



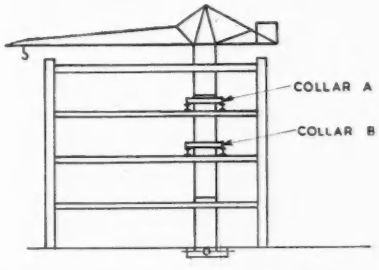
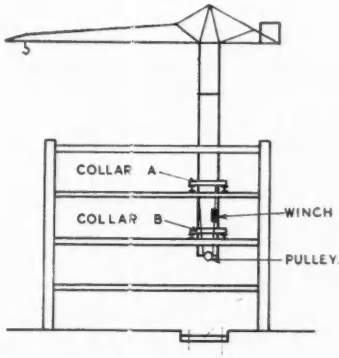


Fig. 1 (left).—Crane erected on foundations. Construction starts, holes left in floors for mast. Fig. 2 (right).—Collars fitted round mast and attached to two floors on girders spanning strong points.



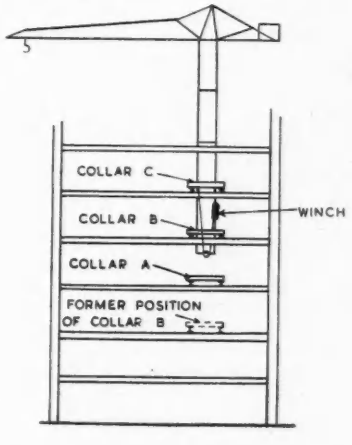


Fig. 3 (left).—Crane detached from foundation, lifted through collars with handwinch and refixed. Fig. 4 (right).—Subsequent lifts employ a third collar, freeing the first for later use.

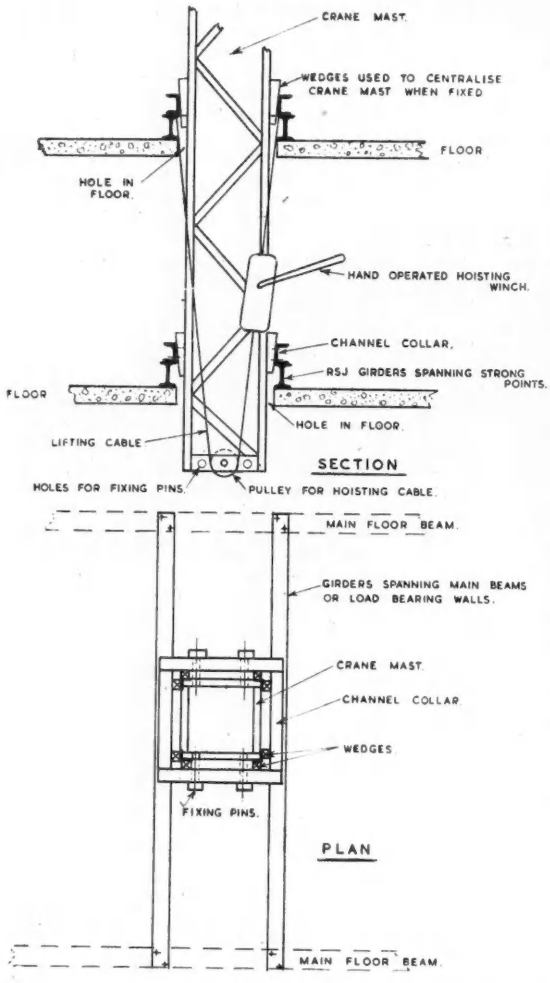


Fig. 5.—Anchoring and lifting detail for small climbing crane.

The building will also have to withstand the lateral loads arising from storm winds acting on the crane when it is out of service. It seems reasonable to allow for these on the basis on the wind pressure for which the building itself is designed (Code of Practice 3, Chapter V—Loading of Buildings). The example in Fig. 6 gives the lateral loads caused by a wind of 100 mph as would be applicable under the Code on a building 180 ft. high. It will be noted that these are higher than those incurred in service.

The use of the larger machines would nave to be considered at the design stage unless advantage could be taken of some inherently strong point, such as a stairwell, or lift shaft. One French manufacturer of cranes offers a service to architects and builders, in indicating the modifications required to any particular design of building in order to accommodate his cranes.

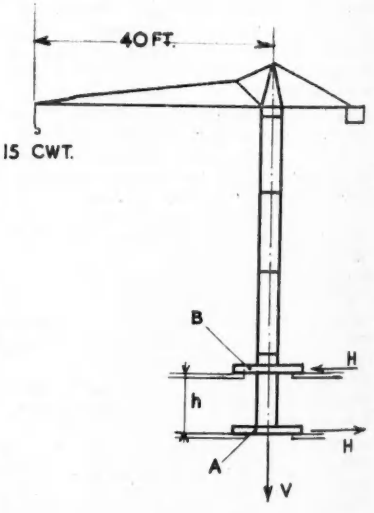
RECENT CONTINENTAL APPLICATIONS

Typical examples of climbing cranes in use are shown in Figs. 7 to 9. Fig. 7 shows three Swedish-made climbing cranes with a capacity of 1 ton at a maximum radius of 62 ft., used for the construction of a 12-storey concrete building in Copenhagen measuring 330 ft. by 33 ft. in plan. This type of crane, which costs the equivalent of about £2,500 in Sweden, is equipped with controls that are operated by push-buttons on a wandering lead, thus enabling the driver to move about the top floor and observe loads being picked up from the ground. The total weight is only about 3 tons, and it has been designed with a slender mast so that the holes left in the floors need only be about 2 ft. 3 in. square. Information collected in Sweden suggests that it takes three men about two and a half days for the preliminary erection at ground level, and a similar expenditure of labour is required to dismantle the crane at roof level. Between these two operations the crane can be lifted two floors in two hours.

French machines are illustrated in Figs. 8 to 10. These are of particular interest in that they are dual-purpose machines and can be used as rail-mounted tower cranes mounted at ground level, or, alternatively, by removing the base, as climbing cranes. A French dual-purpose crane of this type, with a capacity of 15 cwt. at 40-ft. reach, or 12 cwt. at 52-ft. reach, costs about £2,500 in France, though, if provided with remote controls for the driver, the cost may be somewhat higher. Larger capacity machines with longer reach are also available.

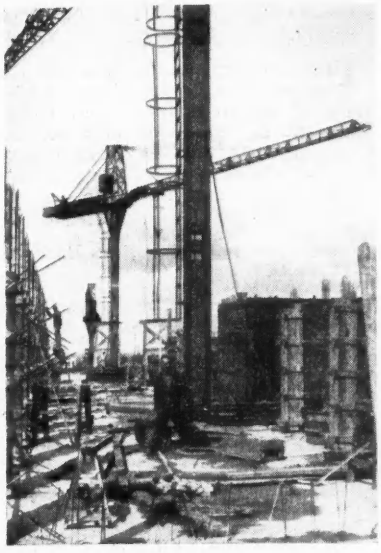
Fig. 9 shows two small climbing cranes seen recently in France, where they were being used to build a 10-storey block 160 ft long and 30 ft deep on a very restricted site where the only ground space not occupied by the building was a small yard at the back, with tunnel access. An anchorage detail for one of these cranes is shown in Fig. 10. Each crane had a capacity of 15 cwt at a maximum reach of 40 ft and the total cost of the two was £4,800. One driver, moving between the two cranes, was able to handle all the materials for this structure, which had frame and floors of *in-situ* concrete, with hollow clay block infilling. The alternative, of using a rail-mounted tower crane on this site, would have necessitated erecting it in the yard at the back of the building, where it would have taken up most of the room available for the storage of materials. The cost of such a crane, exclusive of track, of sufficient capacity and reach to place a 15-cwt load anywhere on this building, would have been of the order of £6,000, and considerable difficulties would have had to be faced in withdrawing it through the tunnel at the end of the job.

A point of particular interest to builders is the versatility of the French cranes. A small machine, costing about £2,600, can be used up to 70 ft in height as a rail-mounted mobile tower crane handling 12-15 cwt at reaches of up to 50 ft for building two- to six-storey buildings. The purchase of additional mast sections enables it to be used in taller buildings as a fixed crane, standing on the ground, with the mast tied to the building. Alternatively, the rail carriage



CONDITION	VERTICAL LOAD IN TONS ON COLLAR A (OR B WHILE CLIMBING)	HORIZONTAL LOADS IN TONS ON COLLARS A AND B (THESE MAY BE IN ANY HORIZONTAL DIRECTION ACCORDING TO THE POSITION OF THE JIB)					
		FOR h =	8'-6"	9'-0"	10'-0"	11'-0"	12'-0"	17'-0"
UNDER FULL LOAD WITHOUT WIND.	V = 5·4	H =	2·65	2·5	2·26	2·05	1·88	1·33
UNDER FULL LOAD WIND APP. 40 M.P.H.	V = 5·4	H =	4·2	4·0	3·57	3·25	2·98	2·05
OUT OF SERVICE WIND APP. 100 M.P.H.	V = 4·6	H =	6	5·7	5·1	4·63	4·25	3·00

Fig. 6.—Loads transferred to the building by a small climbing crane.



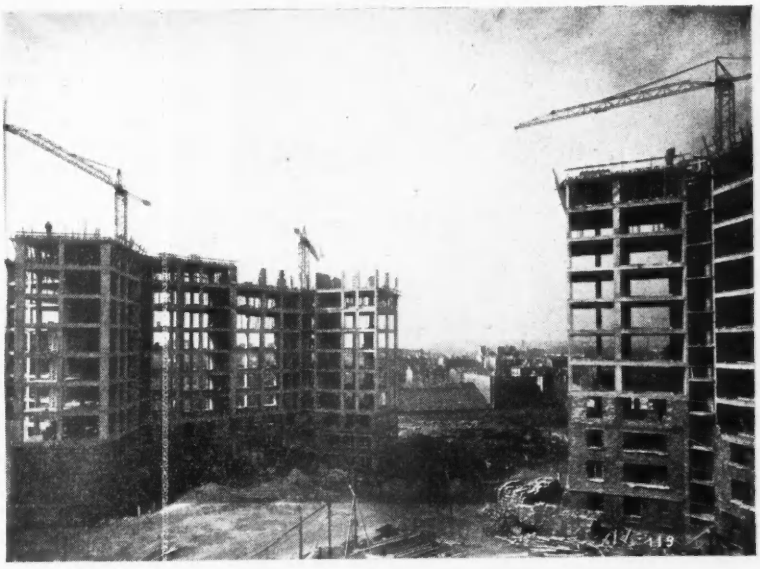


Fig. 7 (left).—Three Swedish climbing cranes on a 12-storey hostel in Copenhagen. Fig. 8 (right).—Three French climbing cranes. Note falling site.

may be removed and the crane used as a climbing crane. Thus a builder has, in one machine, something which is able to tackle a wide range of jobs, provided that the loads to be lifted do not exceed the capacity of the crane.

Very large climbing cranes capable of lifting 5 tons at 100-ft radius have been used in Russia for the building of multi-storey buildings in Moscow and elsewhere. Fig. 11 illustrates a group of Russian climbing cranes being used for erecting and cladding a steel-framed structure.

ADVANTAGES AND LIMITATIONS

For building blocks over 100 ft in height, the climbing crane appears to have considerable advantages over other types. In such circumstances a rail-mounted tower crane standing on the ground is expensive, and little advantage can be taken of its mobility. Indeed, it may have to be anchored to the ground or tied to the building. On this type of building a climbing crane may give equivalent cover at a greatly reduced cost, being easier to erect and dismantle, and taking up no room on the ground. (A typical rail-mounted crane monopolises a lane about 25 ft wide all along the building.) Compared with other types of fixed crane, such as derricks, which may also be mounted on the building, a climbing crane takes up less room, is easier to lift and, by reason of the fact that it slews a full circle, covers a much greater working area.

The use of a climbing crane naturally eliminates the need for a rail track and this may well be a great asset where the ground is poor or steeply sloping. Also, once installed, these cranes can rise to any required height of building without additional capital expenditure—unlike other forms of lifting plant.

The main limitations of the climbing crane are: First, as the crane is fixed, the costs of erection, dismantling and any necessary strengthening of the building must be absorbed by the work it can do in one position. It is unlikely, therefore, to be economic on small buildings except in special circumstances.

Second, the fact that the building must be strong enough to support the crane tends to limit the load capacity of climbing cranes used on buildings of normal design and, unless lift wells are used, holes must be left in floors and filled later.

Third, while excellent cover is provided over the building, the advantage may be at the expense of cover over surrounding ground on which materials can be stored. The use of a climbing crane instead of a rail-mounted tower crane might therefore tend to increase the amount of ground transport required.

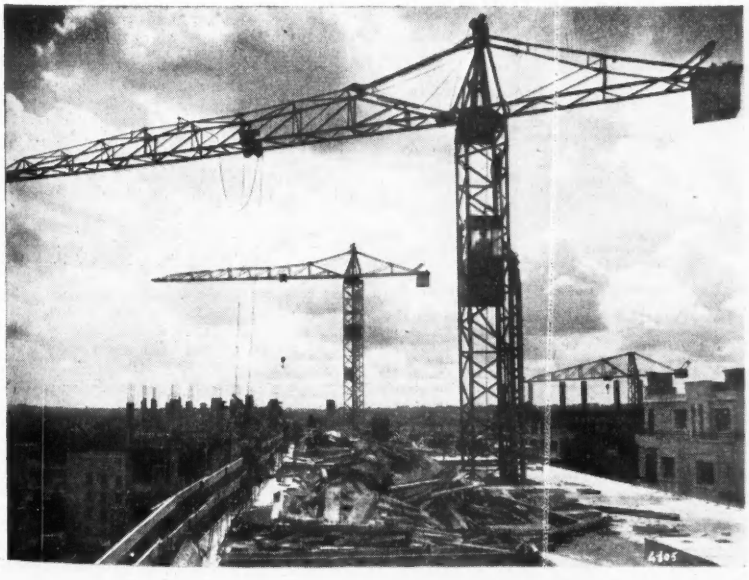


Fig. 9.—Two small French climbing cranes, 15-cwt. capacity, 40-ft. reach.

APPLICATIONS IN BRITAIN

The factors governing the application of climbing cranes are lift, capacity and reach. For reinforced concrete buildings the most widely accepted technique at present involves pouring vertical work *in-situ* and pre-casting a certain amount on all horizontal work. In these circumstances, at any rate in the case of flats and other buildings involving comparatively short spans, maximum loads for a crane, including reinforcement, shutters, pallets of bricks, etc., skips of concrete, pre-cast stairs, beams and floor units,

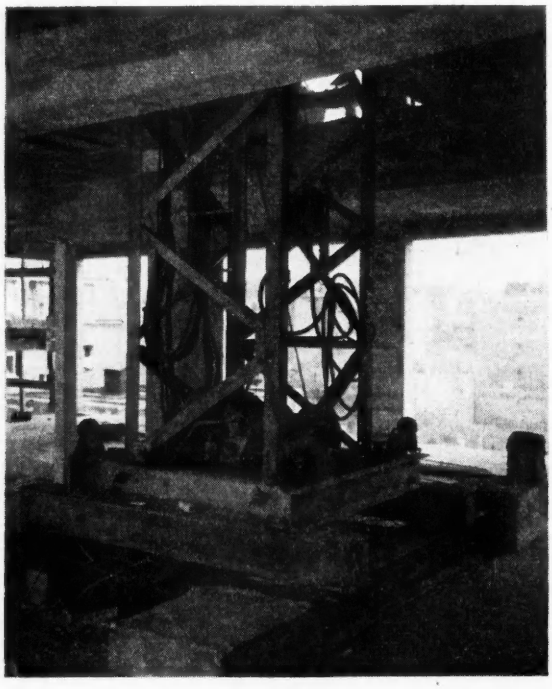


Fig. 10.—*Anchorage details for one of the cranes shown in Fig.* 9.

need not normally exceed 20 or at most 25 cwt.

On many jobs it is likely that a gross working area of 4,000 sq ft would keep a crane fully occupied and in the case of a square point-block one medium-sized crane would cover all the work. For slab blocks of greater area, more than one crane would be required but, in many cases, they might provide a better solution than the use of one large mobile crane at ground level. For the majority of both point and slab blocks a 50-ft. radius would be sufficient.

It can be said, therefore, that a medium-sized climbing crane capable of a 1-ton lift at 50-ft. radius would be a very useful machine, bearing in mind that any exceptional load of around 25 cwt. could be lifted at, say, 45-ft. radius.

The advantages which can be gained from the use of mobile rail-mounted tower cranes in handling precast units, panels and curtain walls are now becoming more generally appreciated, but it is perhaps not sufficiently realised that these advantages become increasingly difficult to achieve with this type of machine as the height of buildings grows beyond 100 ft. If 15- to 20-storey buildings are to be built in the future, it seems essential that the potentialities of climbing cranes must be considered if these advantages are not to be lost.

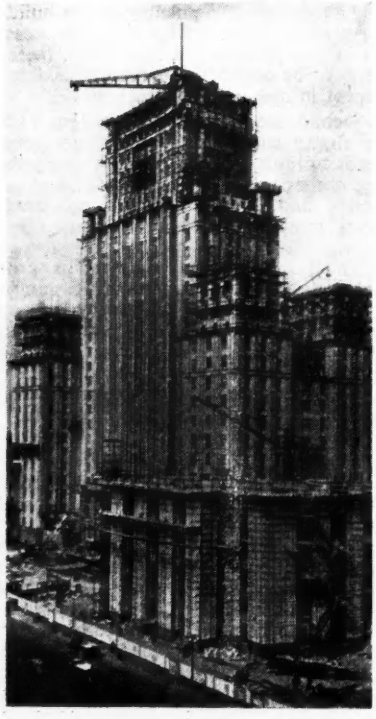


Fig. 11.—*Large Russian climbing cranes.*

Acknowledgment

This paper appears by permission of the Director of Building Research and is Crown Copyright Reserved.

BUILDING EXHIBITION

Diary of Events

Nov.			
18	2.00	Tretol, Ltd.	Lecture. Large Conference Room
19	2.00	Plasterers' Craft Guild	Small Conference Room. AGM
	2.00	Institute of Municipal Building Management	Large Conference Room. Annual General Meeting
21	2.30	South Eastern Brick and Tile Federation	Small Conference Room. Meeting
	4.30	Colt Ventilation, Ltd.	Large Conference Room. Lecture and Film
22	11.45	Architects' Benevolent Society	Large Conference Room. Meeting
	3.00	Nat. Fed. Building Trades Employers	Reception in Pillar Hall
	4.30	Faculty of Architects and Surveyors	Tea. Addison Restaurant
	6.00	Brixton School of Building	Lecture on maintenance of buildings
23	10.00	British Cast Concrete Federation	Small Conference Room. Meeting
	4.30	Colt Ventilation, Ltd.	Large Conference Room. Film-Lecture
24	All day	British Ceramic Society	Large Conference Room
25	3.00	Tretol, Ltd.	Large Conference Room. Lecture
26	2.00	Guild of Bricklayers	Large Conference Room. AGM
	2.30	Institute of Certified Carpenters	Small Conference Room
28	1.00	Worshipful Company of Tylers and Bricklayers	Empire Restaurant Luncheon
29	10.00	National Federation of Clay Industries	Large Conference Room. Meeting
	4.30	Colt Ventilation, Ltd.	Large Conference Room. Film-Lecture

RECENT BRITISH TRADE MARKS

THE following particulars, which are extracts from the *Trade Marks Journal*, are reproduced with the permission of the Controller of HM Stationery Office. The *Trade Marks Journal* can be obtained from the Patent Office, annual subscription £5.

PYROCIDE: 740023. Paints, varnishes (other than insulating varnish) and wood preservatives. Borax Consolidated, Ltd., Regis House, King William-st., London, EC4.

CHEMIDUS: 742808. Paints, varnishes (other than insulating varnish), laequers and preservatives against rust and deterioration of wood, all containing synthetic resin as an ingredient. Chemidus Plastics, Ltd., 89, Upper Thames-st., London, EC4.

EBONOID: 743749. Paints, varnishes (other than insulating varnish), and enamels. Merry and Minton, Ltd., Westminster Works, West Heath, Northfield, Birmingham, 31.

BLUE HAWK: 744014. Sound-absorbing materials in the form of boards, tiles, slabs, shaped pieces and mouldings. The British Plaster Board (Manufacturing), Ltd., 82, Piccadilly, W1.

BLUE HAWK: 744015. Partitions made of plaster or of plaster board and being for use in building constructions; and non-metallic tiles, plaster board and gypsum plaster. The British Plaster Board (Manufacturing), Ltd., 82, Piccadilly, W1.

HILLS DURETTE: 743621. Plywood veneered with plastics. F. Hills and Sons, Ltd., Norton-rd., Stockton-on-Tees.

AERPOREX (No. 742246) and ZOLEXON (No. 742247): Chemical preparations being additives for concrete and mortar. C.L.B. Supplies, Ltd., 16 and 18, Clapham Junction Approach, London, SW11.

AURAFLEX: 739339. Paints. Auralite Luminous Products, Ltd., 34 to 40, Ludgate Hill, London, EC4.

PALADIN: 743494. Paints, varnishes (other than insulating varnish), enamels, painters' colours, distempers, japans, lacquers, paint and varnish driers, wood preservatives, wood stains, anti-corrosive and anti-fouling compositions, and anti-corrosive oils. Ault and Wiborg, Ltd., 71, Standen-rd., SW18.

SUPACOUST: 744462. Gypsum plaster tiles. Petradene, Ltd., 23-39, Bendon Valley, Garratt-la., London, SW13.

EUTEC-SILWELD: 743303. Preparations for welding, brazing and soldering metals. Eutectic Welding Alloys Co., Ltd., 2-8, Victoria-st., London, SW1.

EPILAC: 743197. Priming preparations, undercoatings and enamels, all in the nature of paint. Jenson and Nicholson Group, Ltd., 36, St. James's-st., London, SW1.

EPILITE: 743540. Paints, enamels (in the nature of paint), distempers, lacquers and preservatives against rust and against deterioration of wood. Atlas Preservative Co., Ltd., Fraser-rd., Erith, Kent.

KNIPEX: 744884. Hand tools. C. Gustav Putsch, Rennbaumerstrasse 60, Wuppertal-Hahnerberg, Germany.

ADDACOL: 742536. Colouring matters for admixture with cement, concrete and the like constructional materials. The C. B. Parsons, Co., Ltd., 21, Lower Church-st., Ashby-de-la Zouch, Leicestershire.

EVOPRIME: 743045. Priming paints. Evode, Ltd., Glover-st., Stafford.

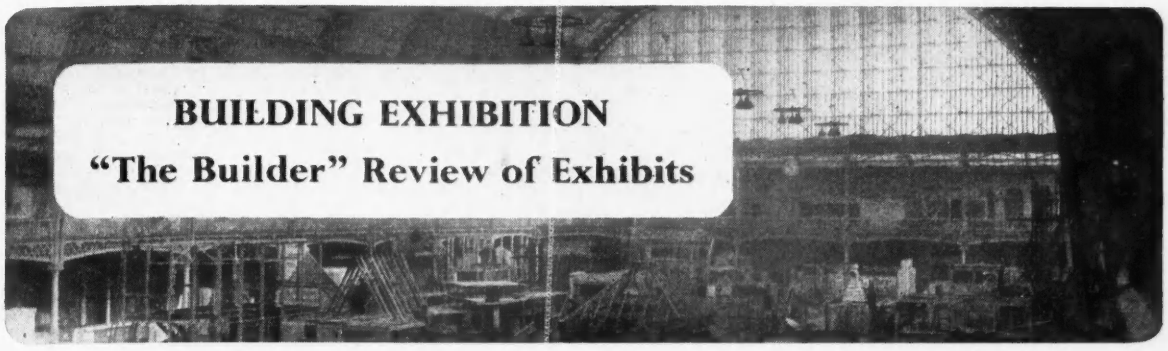
EVODOYLE: 743268. Oil paints and oil-bound distemper. Evode, Ltd., Glover-st., Stafford.

HERCULES: 730683. Heat insulating covers for water heating vessels and for water storage vessels. Range Boilers, Ltd., Bridge-st., Stalybridge, Ches.

CALOBAR: 744596. Composition board for heat insulation purposes. E. A. Chamberlain, Ltd., Nailsworth Mills, Nailsworth, Glos.

RED CASTLE BRAND: 742211. Cement for builders. British Markitex, Ltd., Pomeroy House, Basinghall-st., London, EC2.

PERMAFIBER: 744379. Building materials and parts of buildings included in Class 19, all made of glass fibre bonded with synthetic resin. Permali, Ltd., 125, Bristol-rd., Gloucester.



BUILDING EXHIBITION

"The Builder" Review of Exhibits

WE conclude below our Review of Plant, Materials and Equipment which is being shown at the Building Exhibition, Olympia, London, until November 30. In our next issue, Messrs. Stillman and Eastwick-Field, AA.RIBA, will contribute an article "An Architect Looks at the Building Exhibition." An Exhibition Diary of Meetings and Visits will be found on page 882, and the opening ceremony is reported on page 868.

Special Exhibits

THE way in which glued laminated construction can compete on cost with conventional systems of building is demonstrated by the **British Columbia Lumber Manufacturers' Association,** Vancouver, who have provided a special timber display to show how Pacific Coast hemlock can be used in glued laminated form for low cost industrial and utility structures. The arcade, designed by A. Roscoe-Hudson, ARIBA, architect to the Timber Development Association, consists of three constant radius arches of approximately 31-ft. span, supporting a solid timber canopy fabricated from Western red cedar planks. The three arches, spaced at 10-ft. centres, exemplify the use of "architectural grade" hemlock for decorative glue-lam members used in the construction of public buildings, and how "industrial grade" hemlock can be employed for factories of stores. The cedar planking is oiled to emphasise its natural beauty. A series of display screens of Douglas fir plywood carry photographic enlargements depicting notable timber structures in Canada, the United States, Denmark and the United Kingdom. (Stands 518, 520, 522 and 524.)

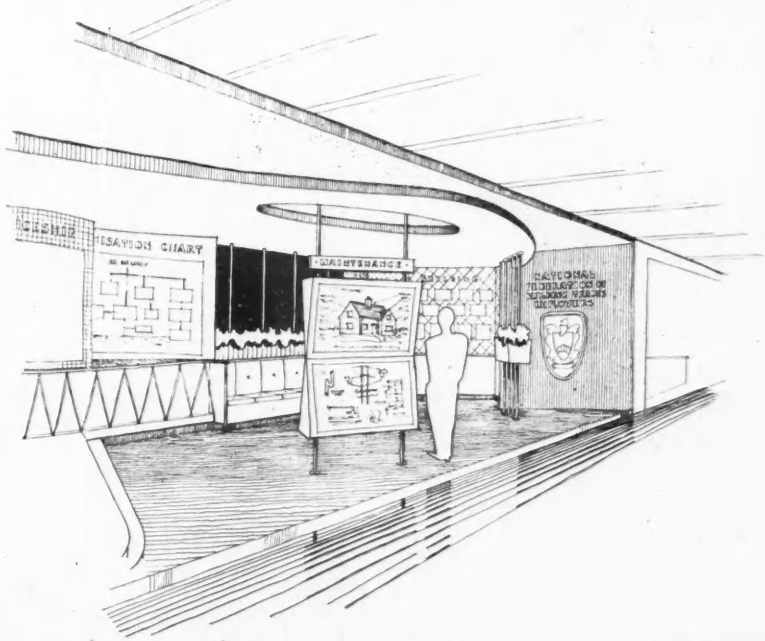
The increased use of rubber as a means of producing a textured finish on concrete has led the **British Rubber Development Board,** Market Buildings, Mark-lane, EC3, to make this one of the main subjects of their exhibit. To produce these special finishes—which may give either a structural key or decorative surface to the concrete—suitably textured rubber sheeting is inserted in the casting frames. When the concrete has set, the rubber is peeled away from the face. Textured surface gives the concrete improved resistance to weathering and a wide range of figuring is available. The other uses for rubber in building shown include hard rubbers, anti-static and studded flooring, floor tiles, latex cement mortars, anti-vibration mountings and rubberised paints. Special emphasis is given to the use of rubber duct formers. (Stand B, 34.)

The display of the **Office of the High Commissioner for Canada,** Canada House, Trafalgar-square, SW1, features timber and other building materials produced by the forest industries of Canada. The inclusion of large beams, as well as exceptionally long rafters and joists, is of particular interest, and the application of smaller timber in house frame-wall construction is also shown. The exhibit of frame-wall construction, while Traditional English in its outer appearance, combines some of the heat-conserving features of Canadian home construction. Plywoods, shingles, soft and hard boards are displayed, showing their uses in building. The species of timber exhibited are confined to those available to purchasers in the United Kingdom through normal trade channels. (Stands 534 and 535.)

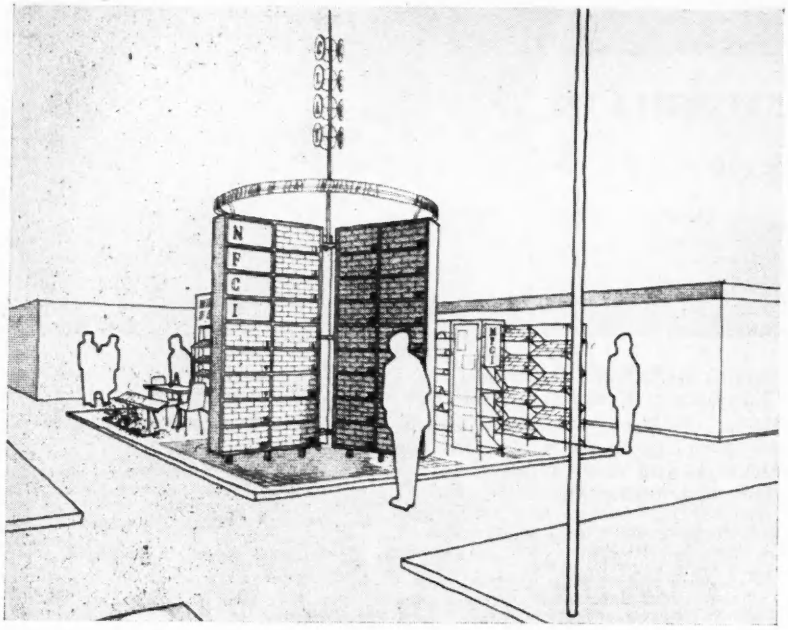
Featured by the **Coal Utilisation Council,** 3, Upper Belgrave-square, SW1, is a range of free-standing convector open solid fuel fires. Two modern cookers, both of which can provide hot water, three independent boilers, a combination grate and several heating stoves are also displayed. Two continuous-burning inset open fires with back boilers are featured in cut-away brickwork to show the correct methods of installation. Information on free instructional courses for members of the building trade, held throughout the country, are also available. (Stand M, 260.)

The stand of the **Copper Development Association,** Kendals Hall, Radlett, Herts, has been designed by A. L. McMullen, FRIBA, with the object of demonstrating some of the wide variety of colours and finishes obtainable with copper and copper alloys. The front and sides of the stand are faced with metal "tiles," each 7 in. square. The bright areas show a satin finish on copper, brass and nickel silver (silver bronze); and the dark areas show green patina and brown bronze on gilding metal, and black bronze and steel bronze on brass. A transparent model house shows the uses of copper tubing for hot and cold water, heating and sanitation services. The single-stack and one-pipe systems of sanitation are illustrated by two full-size layouts, and other exhibits include the application of copper for roofing, flashings, damp-proof courses and rainwater goods. (Stand Q, 307.)

The part played by electricity in typical house improvement schemes is emphasised in the display of the **Electrical Development Association,** 2, Savoy Hill, WC2. Detailed plans show the layout of property both before and after conversion and modernisation. A display features the "ring circuit" method of wiring houses to provide a generous number of socket outlets, so that electrical appliances can be used with the greatest convenience. A selection of portable electric tools are shown on the stand, part of which is provided with an automatic daylight-controlled lighting system, as installed in modern factory buildings. A false ceiling is fitted with louvres which close at intervals to simulate failing daylight, causing a photo-electric cell and relay to switch on



The stand of the National Federation of Building Trades Employers, 82, New Cavendish-street, W1, illustrates the services made available by the organisation. Designed by Kenneth J. Lindy, FRIBA, its central feature is a rotating spiral staircase on which special symbols suggest the opportunities in the building industry open to young entrants today. Photographs show the scale and variety of work carried out by British building contractors, both at home and overseas. Of particular interest are those showing the ways in which older buildings can be converted and modernised, and the examples illustrated of private enterprise housing awarded Ministry of Housing Medals. (*Stands* 478, 480 *and* 482.)



The preliminary design for the stand of the National Federation of Clay Industries, Drayton House, 30, Gordon-street, WC1, won first prize in a competition organised for architectural students at the Regent-street Polytechnic, and was developed by its designer, Alan Mason, in association with Cecil C. Handisyde, ARIBA. The stand demonstrates the variety and versatility of burnt clay products, and brickmakers in all parts of the country have contributed specimens of their products, approximately 100 panels being displayed in the central vertical feature. A selection of roofing tiles shows the wide variety of colours and textures available in plain tiles, pantiles and double roman tiles. Clay floor quarries are incorporated in the floor of the stand, and various colours and sizes have been blended into a harmonious scheme, including coved skirtings. (Stand D, 88.)

artificial lighting. Another section shows how the electric immersion heater can be combined with a back boiler or independent solid fuel appliance. (Stands E, 103 and 104.)

The exhibit of the **Federated Home Timber Associations,** 75, Cannon-street, EC4, is designed to emphasise the uses of home-produced timber in building construction. Examples are shown of home-grown hardwoods and softwoods used for this purpose, and the stand is made up of an office building, the exterior of which illustrates the decorative effect of waney-edged weatherboarding. Its interior walls display species of home-grown timbers, and the ceiling illustrates the use of oak beams. Examples of different types of flooring are also shown, together with furniture built of home-grown hardwoods. Craftsmen are demonstrating the decorative effects achieved from the carving of native timber. The stand was designed by Norman Frith, ARIBA, and Joseph Revill, MSIA. (Stands 530 and 532.)

On display at the stand of the **Federation of Clinker Block Manufacturers,** 16, The Ridings, Surbiton, Surrey, is a section of wall built entirely of clinker blocks, also samples of various types of hollow and solid blocks and aggregates. There are also photographs of buildings in which clinker blocks have been incorporated, demonstrating the various uses of this building unit. (Stand 409.)

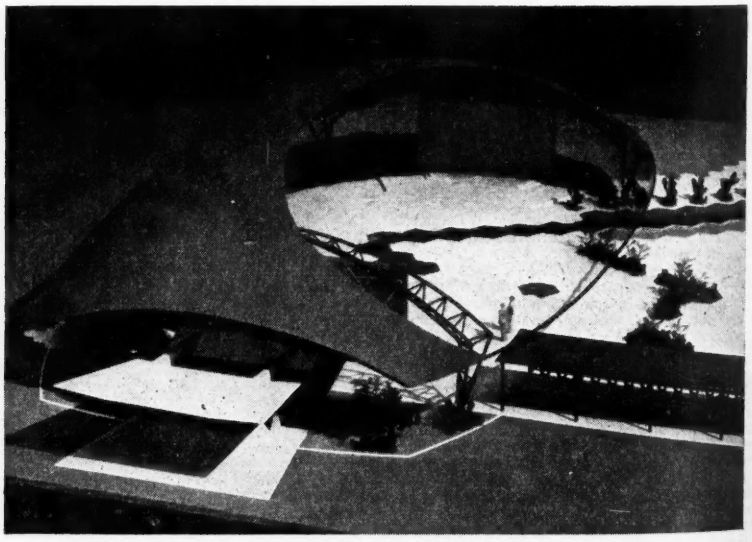
The design of the stand of the **Federation of Master Builders,** 26, Gt. Ormond-street, WC1, is based on a 40-in. planning grid and exploits the decorative effects of plywood as used for external facing in 40-in. wide strips, making each unit ten 4-in. modules. Its internal facing is of light-coloured plywood and the flooring is in sapele strip. The end wall is "Plyfa"-faced with different vertical mouldings to the inner and outer faces, achieving a striking contrast of finish. A curved plywood panel accentuates the stand entrance of the stand, which has been designed by Alan Rosco-Hudson, ARIBA. (Stand 432.)

Space heating by gas and coke is the theme of the Gas Council's stand of the **Gas Council,** 1, Grosvenor-place, SW1. One of the main features is a display of the latest gas-fired appliances designed to provide whole house warmth. A group of specially constructed flues suitable for gas-heating installations in blocks of flats and offices is also displayed, as well as a range of coke appliances. One part of the stand contains a kitchen layout to demonstrate how gas appliances can make the housewife's daily work easier and cleaner. During the exhibition, the Gas Council's film on smoke abatement, "Guilty Chimneys," is being shown to audiences in the exhibition cinema. (Stand P, 300.)

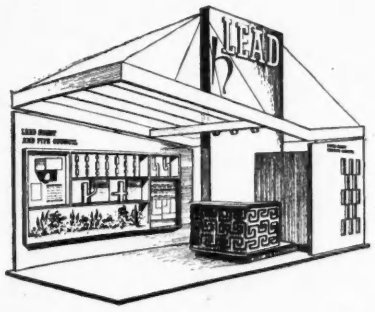
The theme "Lower Cost Housing Experiment and Development in Crosswall Construction" is illustrated by the exhibit of the **Ministry of Housing and Local Government,** Whitehall, SW1. The Ministry is working with the Building Research Station and several local authorities to develop crosswall construction and lower costs, and the schemes undertaken during the past two years are detailed on the stand. The principle of crosswall construction means that the loads of the roof and first floor of a house are carried on the party walls only, instead of being distributed between the external walls, party walls and internal walls. A section on four-storey maisonettes is of particular interest and shows the constructional cost savings in comparison with orthodox methods. A final section of the exhibit is devoted to examples of residential redevelopment, showing the advantages of mixed development incorporating houses, maisonettes and flats. (Stands 453 and 455.)

The main feature of the display of the **National Coal Board,** Hobart House, Grosvenor-place, SW1, is 25 panels of different types of bricks made by the Board at their various brickworks throughout the United Kingdom. The stand was designed by D. E. Wright, LRIBA, one of the Board's own architects, who won a competition open to Board employees. An engraved perspex illuminated map shows the exact location of Board's brickworks—the main structure being built with two examples of their facing bricks. Other features include samples of firebricks, stoneware and fireclay-ware, as well as "Synthaprufe"—a liquid waterproofing and jointing material containing rubber for damp walls, roofs and concrete sub-floors; also for fixing linoleum and wood block floorings. "Presomet," a quick-drying bituminous black paint, with a glossy durable surface, is shown, together with "Presotim" wood preservative and stain. (Stand E, 109.)

The main emphasis at the stand of the **Solid Smokeless Fuels Federation,** 74, Grosvenor-street, W1, is placed on the storage of fuel in houses and flats. It shows how adequate fuel storage enables householders to build up a reserve of fuel so as to reduce peak demands during cold spells. Typical stores for houses and flats, showing recommended storage capacities and desirable means of access, are displayed in relation to the proportions of these dwellings. Also shown are approved domestic appliances, recommended for use with solid smokeless fuels in smoke control areas. (Stand K, 223.)



A model is being shown by the Timber Development Association, 21, College Hill, EC4, of the Assembly Hall of Rangoon University, designed by Raglan Squire and Partners, FRIBA. The roof of the structure, a dome built up of five teak laminates, is 153 ft. by 93 ft. wide, and rests on tubular steel portal frames at either end. The laminated timber shell is pierced by circular 24 in. diameter holes to take coloured glass lights, and the edge beams are carried on 16 intermediate steel columns. The consultant engineers for the project are Ove Arup and Partners, and the building contract is being executed by Taylor Woodrow, Ltd. (Stand P, 299.)

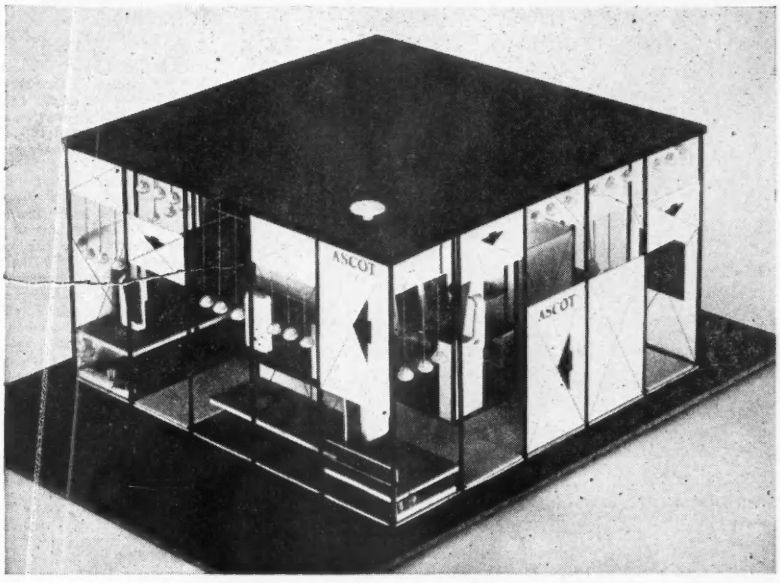


Sir Jacob Epstein's model for his lead architectural sculpture, "Madonna and Child," is on view on the stand taken by the Lead Sheet and Pipe Council in association with the Lead Development Association, Eagle House, Jermyn-street, SW1. Other displays show leadwork examples, and visitors can also see demonstrations of leadburning. The stand was designed by John Pinckheard, ARIBA. (Stand H, 189.)

The exhibit of the **Timber Development Association,** 21, College Hill, EC4, features outstanding modern achievements in the structural and decorative use of wood and plywood, both at home and overseas. Houses, schools, public and industrial buildings are being illustrated by scale models, photographs and display panels. Of particular interest is a model of the Assembly Hall of Rangoon University, designed by Raglan Squire and Partners, FRIBA. The roof of the structure, a dome built up of five teak laminates, is 153 ft. long by 93 ft. wide and rests on portal frames at either end—a use of laminated timber shell which represents one of the biggest advances in timber engineering in recent years. (Stand P, 299.)

An exhibition of several hundred designs is being shown on the second floor of the Empire Hall by **Tretol, Ltd.,** Tretol House, The Hyde, NW9. These have been submitted by architects throughout the country in a competition sponsored by the company on the theme "The House for the Professional Man." The display framework against which the designs are shown has been formed from scaffolding units provided by Acrow, Ltd. In all, premiums of £500 are being presented by the sponsoring company for the three winning designs—the assessor being Clifford Culpin, FRIBA.

The **Zinc Development Association,** 34, Berkeley-square, W1, have arranged their exhibits and illustrations to give up-to-date information on the various applications of zinc in building. The stand has been designed by James Cubitt and Partners, A/ARIBA, and the main feature is a tall vertical exhibit on which are mounted photographs showing the use of galvanised steel frames in modern steel construction. On a raised platform consisting of a galvanised steel grid, various zinc and zinc-coated articles are shown. Special emphasis is placed on the use of zinc sheet as a permanent roof covering, and facts are given on all types of zinc coatings. The uses of zinc alloy die castings in building displayed include window fasteners, door locks, bathroom fittings,, electrical conduit fittings and timber dowels. (Stand D, 82.)



The stand of Ascot Gas Water Heaters, Ltd., North Circular-road, NW10, is the design of Dennis Pugh, ARIBA, whose entry won first prize in a competition recently held by the company. It shows how Ascot gas water heaters have been used in a variety of new housing schemes, and in schemes of modernisation and improvement, and a range of heaters, including large multi-points, bath and sink water heaters, are exhibited—several in operation. Of particular interest is a balanced flue multi-point water heater which has no visible flue. The flue terminal can be fitted anywhere on an outside wall, regardless of corners or overhanging projections such as balconies or eaves. (Stand N, 272.)

Services and Fittings

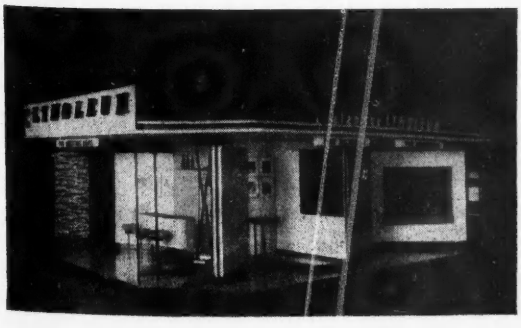
A wide variety of "Sadia" electric water heaters are being displayed by **Aidas Electric, Ltd.,** Rowdell-road, Northolt, Greenford, Middx. Models of particular interest include the "Select" single-point sink waterheater of the free outlet type. This has a full 3-gallon capacity with less than 8 in. projection from the wall. The type UDB Sadia also exhibited is a complete hot water service for kitchen and bathroom from one compact unit mounted beneath the draining board in the kitchen. Designed to reduce plumbing costs for blocks of flats—by eliminating the need for expansion pipes and separate down services for hot and cold water supply—the cistern-type "Sadia" water heaters are displayed. One side of the stand features a large diagram showing how this type reduces installation costs. (Stand D, 79).

A range of "Drugasar" balanced gas heaters now available to the British market is featured by **F. A. Borchardt, Ltd.,** 3, Chesterfield-road, W4. These heaters are designed to give convected as well as radiated heat, and are fitted to specially constructed flue equipment so that the heating unit is completely sealed from the room being heated, thus obviating ventilation problems. The "Drugasar" is supplied with lighting and heat control, and requires no chimney flue. It is particularly suitable for warming premises where the heating is intermittent in character, such as offices, churches or schools. (Stand 567.)

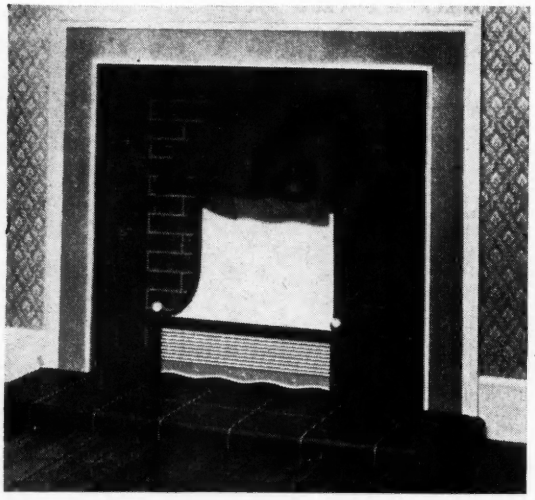
A comprehensive range of "Supataps," "Supermixers" and accessories are being featured by **F. H. Bourner and Co. (Engineers), Ltd.,** Manor Royal, Crawley, Sussex. "Supataps" and "Supermixers" can be seen fitted to basins, baths and sinks in a natural setting, and demonstrations are being held to show the method of changing a washer without turning off the water. In addition, they are displaying a battery of "Supatap" sprinklers with running water, this fitting having been designed for establishments where communal washing is practised. Its principal feature is that ablutions can be performed under running water, thus reducing the consumption of water and fuel. The "Supadynamic" cartridge-operated tool for fixing power pins into steel, concrete and brick can also be seen in action. (Stands 548 and 550.)

The latest developments in heat-pump applications are shown by **Brentford Electric, Ltd.,** Kidbrooke Park-road, Kidbrooke, SE3, including the "Duo-Therm" domestic heat-pump unit, and also the "Twin-Air" and "Thermocoolair" appliances, seen for the first time. The "Twin-Air" is a compact unit designed to recirculate, dehumidify and filter the air as necessary—operating on the heat-pump principle. The entire apparatus is mounted in a single casing, for installation through the wall or in the frame opening of a window. Two versions are available: an industrial and a domestic. The compact "Thermocoolair" heat-pump unit for cellars, kitchens or stores, cools, dehumidifies and re-circulates air while supplying constant hot water. (Stand S, 344).

A large section of their stand this year has been devoted by **Colt Ventilation, Ltd.,** Surbiton, Surrey, to the display of "Two-Way" fan. This ventilator simultaneously provides a fresh air inlet and extracts foul air from within the room. A full range of industrial ventilation equipment is also shown and full-scale working models are built into the stand, so that they can be operated by visitors. W. H. Colt (London), Ltd., are also exhibiting on this stand, and a model of their chimney cowl complete with air compressor is shown to



The stand of the Linoleum Manufacturers' Association, 127, Victoria-street, SW1, has been divided into several sections showing the suggested uses of linoleum in kitchens, hotel bars, hospital wards, schools and offices, both as a floor covering and in other applications. (Stand 628.)



The "Rayburn" free-standing open fire recently added to their range by Allied Ironfounders, Ltd., 28, Brook-street, W1, has a restrictable throat and can be installed in most recesses. Two models are available, the 16 in. capable of heating about 2,250 cu. ft.; and the 18 in. fire up to 2,500 cu. ft. Other fires on show include a convector fire which can burn over-night without attention, and can be fitted into the old-fashioned type of house if required, as well as the "Lexham" and "Projector" open fires. A "Compac" bath suite has also been installed on the stand. (Stands 658 and 659.)

illustrate its function in curing down-draught and overcoming smoky fire nuisances. (Stand K, 231).

The joint exhibit of **Conex-Terna, Ltd.,** Great Bridge, and **Sanbra, Ltd.,** Birmingham, covers a wide range of sanitary fittings and other plumbing material. The combined stand shows a full range of kitchen and bath-room fittings, including the "Easilyne" range of basin and bath taps, as well as a bath mixer with a re-styled "telephone rest" and finger-tip control. In addition to "Conex" and "Conexcel" fittings for copper pipes is a display of newly-introduced lightweight fittings for waste pipe installation, and also fittings for use with Polythene or plastic tube for cold water services. Waste traps manufactured from solid-drawn copper tube and brass castings are also on view, together with hot-pressed valves in sizes up to 2 in. with an improved design of headwork. (Stand D, 75).

A working exhibit of their new skirting heating system is featured at the stand of **Crane, Ltd.,** 45-51 Leman-street, E1. This comprises a boiler, together with a 6 in. high radiant-type skirting heating and a 9 in. high combined radiant and convection panel. This system provides greater scope for planning, since the heaters simply take the place of normal wooden skirting. Domestic and central heating boilers are also prominent. Burning a variety of solid smokeless fuels, they provide constant hot water, and are available with or without automatic regulator. Examples of bronze globe and gate valves for hot water installations can also be seen, with black and galvanised malleable iron pipe fittings. Callers can also inspect examples of hospital and wall radiators, made in cast iron. (Stand N, 267).

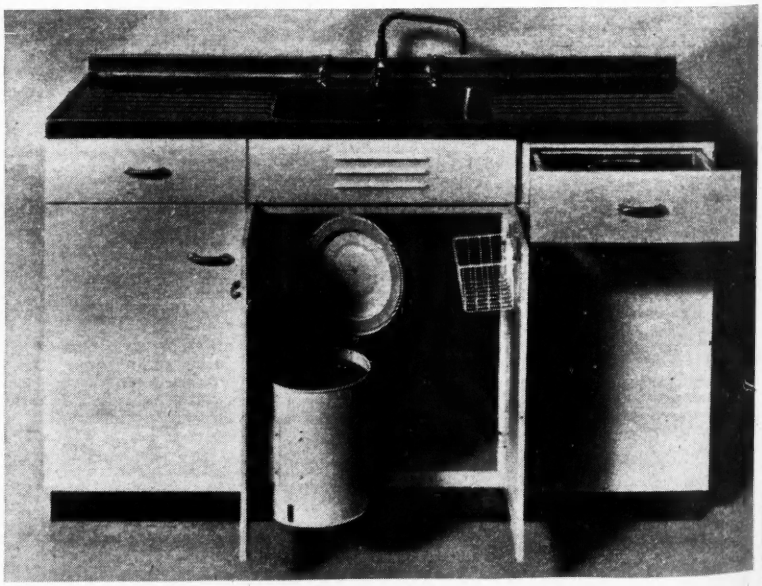
A display of their dust control equipment is featured by **Dallow Lambert and Co., Ltd.,** Spalding-street, Leicester. Equipment is available for collecting all types of dusts, chippings and granular materials set up by manufacturing processes, and individual unit dust collectors or plant installations can be supplied. A complete range of "Drytex" and "Dustmaster" unit dust collectors is available to cover most applications, and the equipment is suitable for all types of industry, particularly woodworking, engineering, foundry, ceramics and plastics. Various features are available as standard with the equipment, including patent belt duct applications for moving cutter heads, two-way rotary valves, patent universal fittings and a multi-bagging device for refuse. (Stand W, 373).

A selection of their permanently oil-filled, thermostatically controlled electric radiators and pressed steel water radiators is displayed by **Dimplex, Ltd.,** of Millbrook, Southampton. The electric radiator display includes two new dimple high models designed for situations where height is limited, such as in window bays with low cills, beneath church pews or under bench-type seats. They are only 14½in. in height, and can be supplied with wall brackets or on castor wheels. To their existing range of column-type radiators, the company have now added a compact 1kW model which is also available with standard type feet or with castor wheels. Both the electric radiators and pressed steel water radiators are finished in eight high-gloss stove enamel finishes. The latter are claimed to be completely frost-proof. (Stand 481.)

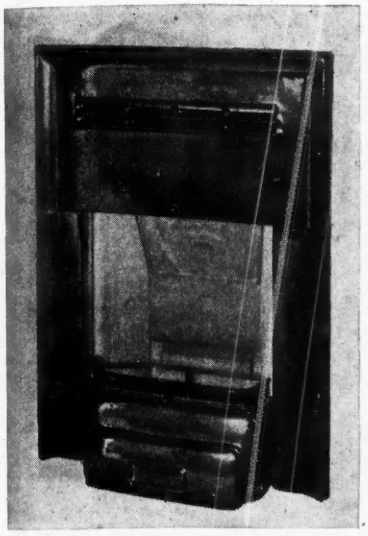
Electrical accessories, emergency lighting equipment and cables are being shown by the **Edison Swan Electric Co., Ltd.,** 155 Charing Cross-road, WC2. The three main displays of electrical accessories include the "Windsor" range of 13 amp socket outlets, switch socket outlets and plugs to BS.1363 for ring main circuits; as well as the "Surrey" range of AC micro-break switches with a "sliding bar" switch action. An all-moulded ceiling switch fitted with a nylon connector can be seen. This is used in place of the normal short length of chain, thus giving double insulation to the switch mechanism and limiting the replacement so often necessary with the usual type of connector. A further item of interest is an architectural lampholder incorporating a special locking device which facilitates insertion and withdrawal of the lamp and ensures that the lamp is firmly secured under all normal operating conditions. An extensive display of cables for house wiring and low power distribution includes a newly-introduced type with Polythene insulation and PVC sheath. (Stand B, 28).

An outstanding feature of the display by **Ferranti, Ltd.,** Hollinwood, Lancs, is the "Fridge-Heater" domestic heat pump, which performs the dual function of cooling the larder and heating water. It is understood to be the first heat pump of this design and application to be marketed, and the design embodies high evaporation temperatures with ice-making facilities and airing cupboard heat leak. Also on view is a new builders' fire designed for use in rooms where the furniture may have to be nearer the heat source than is normally required. Another recently-introduced item is a wall fire suitable for use in bathrooms, nurseries or sanatoria. A novel feature incorporated is an adjusting rod which controls the movement of the reflector, thus enabling the user to direct the radiant heat beam as desired. The display also includes a new background heater and a floor fire, which incorporates a true parabolic reflector and an accurately positioned high-temperature element. (Stand 416.)

The **General Electric Co., Ltd.,** Magnet House, Kingsway, WC2, exhibiting for the first time at the Exhibition, offer a complete electrical service to the building trades. Their exhibits include metal-clad busbar and rising main distribution systems, metal ducting, switchgear, commercial fluorescent fittings and Osram tubes, unit and "Nightstor" heaters. A large part of the stand is devoted to examples of metal-clad distribution systems. A vertical rising main busbar system for use in multi-storey buildings, or where it is desired to extend mains service to distribution boards on each floor, is shown feeding under-floor duct systems and overhead busbar trunking. To enable engineers to build switchboards either on site or in their own workshops a complete range of switchboard components and accessories is made by the company, and a switchboard of the "medium weight" range can be seen. The commercial fluorescent fittings shown are suited to a wide range of applications in public buildings and special thought has been given to such problems as erection and maintenance. In every case the control gear is accommodated within the fitting. (Stand N, 276.)



This sink unit incorporates a stainless steel sink and a double drainer unit, together with a self-opening garbage can. Two complete kitchens are being displayed by its makers, Ezee Kitchens, Ltd., 46, Davies-street, W1, one containing a stainless steel double-sink and double-drainer unit with built-in 4½ cu. ft. refrigerator and electric cooker, the latter having automatic timer and heat control. The other kitchen includes a 42 in. sink with built-in Hoover washer, gas cooker and 3 cu. ft. refrigerator. The range of cabinets shown are of all-welded "Zintec" steel, stove enamelled in cream or white with Formica-covered worktops. (Stands 464 and 466.)



The wide range of solid fuel and space heating appliances which are being presented by Sidney Flavel and Co., Ltd., Leamington Spa, includes a "Metro" boiler unit with a ventilating canopy (shown with a "Newbold" controlled-combustion grate). The cold air is drawn in at the sides of the rim before being warmed and discharged through the louvres. A continuous supply of hot water at about 10-15 gallons per hour can be obtained. (*Stand N*, 266.)

Shown by **Hattersley Brothers, Ltd.**, Temple Chambers, Temple-avenue, EC4, is a comprehensive range of modern "Swinton" solid fuel appliances. Among these is the "Forum" back boiler unit which has a patented flue ensuring an economical use of fuel in providing central heating for three radiators, towel rail, and domestic hot water for the average household requirements. Aso displayed is the "Leander" back boiler unit and continuous burning fire, in addition to combination grates, stools and frets, and openable stoves. The whole range of appliances is finished in various shades of vitreous enamel. (Stand 421.)

A wide range of oil-filled electric column and panel radiators is being shown by **Hurseal, Ltd.**, 229, Regent-street, W1, ranging from the new baby ½kW "Minor" to 2kW radiators, all of which are thermostatically controlled. Shown for the first time is a long-burning oil-filled paraffin radiator which, it is claimed, will burn for seven days continuously for less than ½d. per hour. An associated company, Gulf Radiators, Ltd., are exhibiting their column and wall panel type hot-water radiators which can be manufactured in any length and in curved and angled form. The draughtproofing side of the Group is represented by Sealdraught, Ltd., who market a specialised system of sprung-bronze weatherstripping. They are exhibiting the "Auto-seal" automatic draught excluder which can be fitted to the bottom of any interior door. This company are also showing their flexible featherweight "Sun-Seal" venetian blinds. (Stands L, 244 and 245.)

This stand has been designed by Cecil C. Handisyde, ARIBA, for Frenger Ceilings, Ltd., 67 Great Russell-street, WC1, and shows the principles of their heated acoustic ceiling. This system is a suspended ceiling of 24 in.-square aluminium perforated panels clipped to a grid of pipes which distribute heat from a hot water system. The perforated panels are warmed by conduction, and radiate heat to the room below. Sound waves are absorbed by a thermal and acoustic blanket above. The ceiling can accommodate recess lighting fittings, and new features include improved clipping and insulation methods, and a hinged access panel for inspecting control gear. (*Stand G*, 1550.)

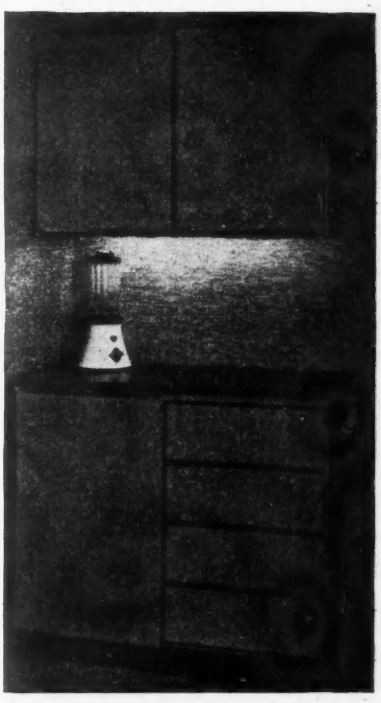
A feature of the stand of **Laconite, Ltd.**, Halfway Green, Walton-on-Thames, Surrey, is a complete bathroom with the walls and bath panels of their plastic enamelled surfacing material, Laconite. The heat-resisting properties of this panelling are demonstrated by the company, and Laconite is shown in its various forms and finishes. Various methods of treatment, and a full range of colours are also featured. (Stands 556 and 558.)

The "Newton" coke-burning fret introduced recently by **Newton, Chambers and Co., Ltd.**, Thorncliffe, Sheffield, is on view, and is intended to meet the needs of householders who wish to contribute to the clean air campaign but do not require a continuous-burning fire. The appliance is available in four sizes and five colours, and is fitted with a "Redfyre" chrome steel heat-resistant bottom grate and an adjustable stand. On show are three "Redfyre" heating stoves which have a top feed and are controlled from one point on the right-hand side, where there is a simple lever opening two dampers and the air intake. The display also includes a "Bacboiler" behind a Royal Venton fireplace, a heating stove, self-contained boiler flue, and a full range of continuous-burning fires. (Stand M, 262.)

To prevent cracking or crazing in asphalt or felt roofing membranes due to the expansion of air or water vapour trapped beneath them, a small copper vent known as the "Parovent" is being displayed by the **Paramount Asphalte and Flooring Co., Ltd.**, 149, Kennington Park-road, SE11. Three types are available, and one vent for every 20 sq. yds. is understood to be normally sufficient to relieve any pressure. When the roof construction is complete, the accumulated air or water vapour is exhausted through the vent, which acts as a breather. (Stand 643.)

The work of the company's lighting design service is the feature of the stand of **Philips Electrical, Ltd.**, Century House, Shaftesbury-avenue, WC2. The service is free to architects and builders and offers the co-operation of fully qualified lighting engineers, and an architect who has made a special study of lighting in all its aspects. Large photographs and transparencies illustrate some of the schemes which have been completed by the service. Caption boards explain its scope and a display features fittings used in actual schemes. (Stand F, 124.)

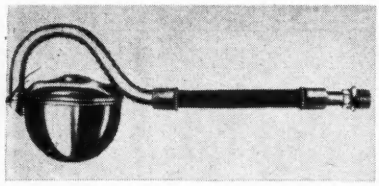
The "Heatmaster," demonstrated for the first time by **Radiation Group Sales, Ltd.**, Radiation House, 7, Stratford-place, W1, provides the three essential services, cooking, hot water and house heating, under automatic control from one unit. It also gives thermostatic control over a full range of oven temperatures, and ducted warm air can be circulated throughout ground floor rooms. The new "Parkray 3" smoke-consuming convector fire is also on view. This fits most 16in. and 18in. fire openings without alteration to the surround, and convection louvres can be added to its top for openings higher than 22 ins. Burning smokeless or bituminous fuels by the down-draught method, the "Parkray 3" is claimed to fully heat a room up to 2,500 cu. ft. in the winter on from 1¼ to 1¾ cwts. of fuel. Among the other space and water heaters shown on the stand are the "Nautilus 55" automatic boiler, and the "Chevin Mk: II" boiler flue set. The first is a thermostatically-controlled boiler heating 70-80 sq. ft. of radiator area with constand hot water; or heating 130 sq. ft. of radiator area, acting as a small central heating system. The "Chevin Mk. II" can be supplied with a 16-in. inset fire to provide domestic hot water and heat a radiator or towel rail. (Stand M, 261.)



The "Storemaster" range of metal kitchen cabinets, making their first public appearance on the stand of W. N. Froy and Sons, Ltd., King-street, W6, are based on stressed skin construction and embody silent self-closing doors with pneumatic shock absorption and self-opening drawers actuated by torsion bars under hand or knee pressure. The range includes sink, base and wall units, and is available in several colours. The stand also features a selection of bath and sanitary fittings as well as convector and other fires. (*Stands Q*, 304 *and* 305.)

A joint stand has been taken by Greenwood's and Airvac Ventilating Co., Ltd., and their associate, Greenwood and Hughes, Ltd., Beacon House, Kingsway, WC2. It features a range of ventilators, conduit systems and other equipment, including roof-mounted extractor fan units and continuous roof lights for flat and barrel roofs. A new Grevak "Monitor" anti-syphon deep seal bottle trap, is also on view. (*Stands H*, 192 *and J*, 193 *and* 194.)

A representative range of kitchen furniture made in unit form to suit every requirement is exhibited by **Redwing, Ltd.**, 340 Bensham-lane, Thornton Heath, Croydon. The units are understood to be light, strong and rustless —only aluminium, stainless steel and hard plastics being used in the construction. The aluminium is treated with a high-grade stoved enamel to give a hard wearing finish, and the door and drawer fronts have rubber cushioned edges to ensure quiet closing. Concealed hinges are fitted, and the drawers run on plastic rollers. (Stand 476.)



This newcomer to the range of "Prestex" plumbers' brasswork produced by Peglers, Ltd., Prestex House, Marshalsea-road, SE1, is known as the "Neofeed" ballfeed for expansion tanks in indirect hot water systems. It has no valve or piston which can "fur" and stick, and has been tested by the British Waterworks Association and the Metropolitan Water Board and found satisfactory. A range of compression joints and sink fittings can also be seen. (Stand E, 102.)

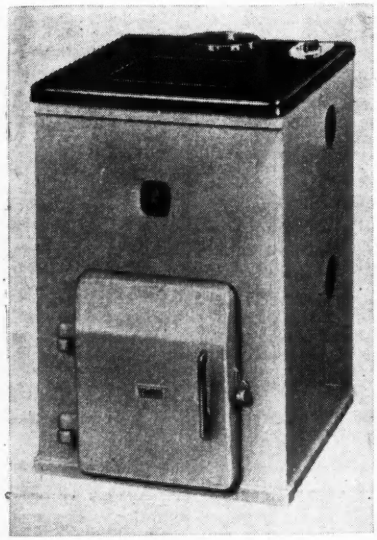
Steel Radiators, Ltd., are exhibiting their range of "Stelrad" central heating radiators. The display includes radiators from 1⅛ in. to 11 in. wide and from 11 in. to 36 in. high. Radiators not previously exhibited include a multiple-bank wall type and an angle wall type. The "Stella" oil convector heater is shown, which is fitted with a burner mounted on a heavy die-casting to prevent any distortion due to heat. A central air supply through the burner ensures good combustion, odourless operation and a rich blue flame. (Stand P, 301).

A selection of automatic heating and domestic boilers are being displayed by **Trianco, Ltd.,** Imber-court, East Molesey, Surrey. Combustion air is supplied from a small thermostatically-controlled fan unit, and sufficient fuel for a relatively long period is stored in a hopper integral with the top of the boiler. The fuel falls through the bottom of the hopper into the firebox below as required, and as hot water is withdrawn, the forced-draught fan is switched on—being automatically cut out when the required water temperature is again reached. A new automatic gravity feed industrial boiler is also on show, incorporating a semi- and fully-automatic declinkering device. (Stands O, 290 and 291).

An underdraught fire is being displayed by **Triplex Foundry, Ltd.,** Upper Church-lane, Tipton, Staffs., which is made with an enamelled front bar and hearth plate in a choice of three colours to suit standard Milner backs in 16 in. and 18 in. sizes. "Underdraught" boiler grates are also shown, available alternative sizes of boiler for domestic hot water supply and background heating. A working model of the Triplex "W" cooker is displayed with an improved hotplate, larger boiler output and other improvements. Also on show for the first time is a boiler grate combining the type "A" boiler flue set with the "Clent" No. 3 fire. (Stand N, 269).

A wide range of special units made from heat and acid-resisting refractory concrete are being featured by **True Flue, Ltd.,** Convector House, Acacia-road, St. John's Wood, NW8, including all types of flue linings ranging from 5 in. to 3 ft. internal diameter. The triple unit displayed (comprising Lintol, gather-over and restricted throat), now incorporates for the first time a membrane attachment enabling an appliance with a back boiler to be suitably throated. A further new development converts the unit for use with a standard fireback. The company are also showing for the first time a large external boiler flue incorporating a 7½ in. internal diameter lining for use with open fires and larger diameter boilers. This flue is suitable for conversion purposes as well as for new houses. A subsidiary company, True-Crete, Ltd., are showing specimens of cast stone products together with several new types of exposed aggregate panels. (Stand A, 11).

A feature of the display by **W. C. Youngman, Ltd.,** Manor Royal, Crawley, Sussex, are the "Leda" and "Masque" ranges of bathroom fittings, prominent among which is a hot water towel rail. Manufactured under two patent rights, the "Leda" rail incorporates several features designed to permit graceful design and efficient performance. The chief feature of the "Masque" range of bathroom fittings is the concealed method of fixing, and each matched item in the range is designed to suit current trends. (Stands H, 176 and K, 221.)

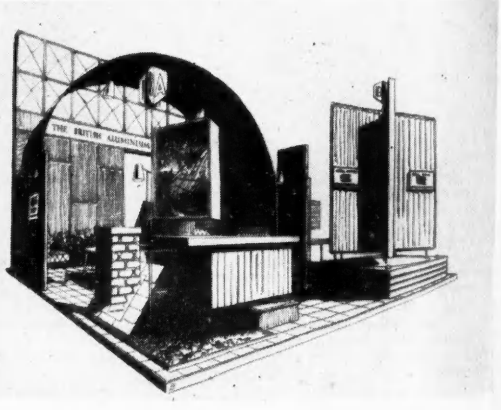


Several new models have been added to the range of "Tayco" solid fuel domestic hot water boilers produced by Robert Taylor and Co. (Ironfounders) Ltd., 66 Victoria-street, SW1. These range in capacity from 20,000 to 65,000 BTU's per hour, and of particular interest is the "Royal" thermostatically-controlled boiler shown above. (Stand N, 270.)

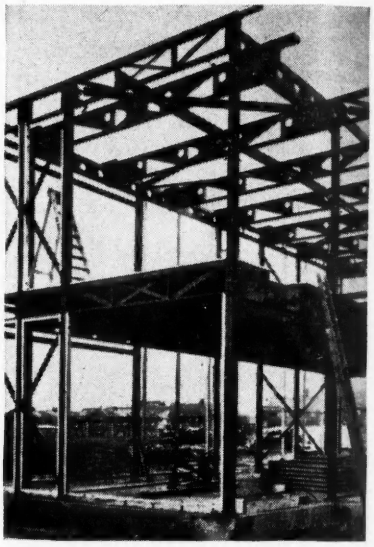
Metalwork

A special feature of the stand of **D. Anderson and Son, Ltd.,** Old Ford, E3, is a twin roof which incorporates two insulated systems, aluminium "E" decking and "Andek" roofing. Each is a complete roof supplied and fixed by the company, who are exhibiting a full range of their "Red Hand" products and roofing system. Of general interest is a new roofing felt "Thermoglas," which has a glass fibre base, and is understood to be inert, rot-proof and chemically stable. A wide range of insulated deckings are displayed, covering all types of roofs, and of special interest is the "Multi-Span" system for long spans. (Stand F, 129.)

The display of **Ajax Architectural Products, Ltd.,** Kangley Bridge-road, SE26, includes extruded sections for every purpose, both interior and exterior, from shopfronts to building facings. Produced from a corrosion-resisting alloy, the sections are complementary to each other. The standard shop front sections are satin anodise and facings can be supplied either satin anodised or stove enamelled to a wide range of colours. (Stand 622.)



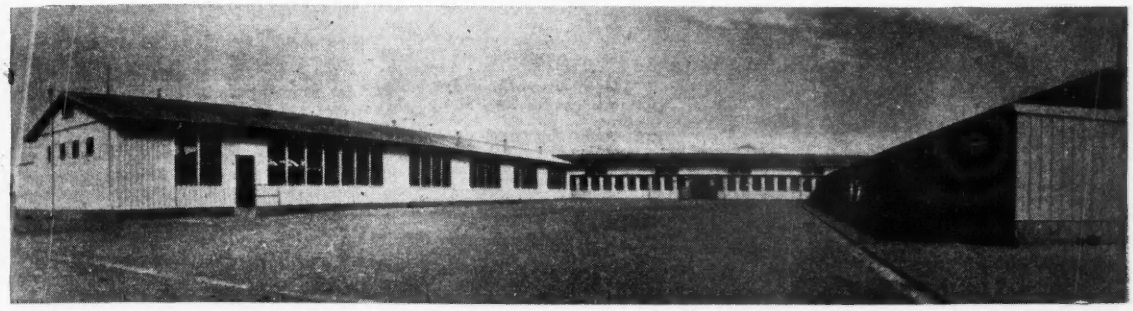
The principal exhibits of the British Aluminium Co., Ltd., Norfolk House, St. James's-square, SW1, are "Rigidal," corrugated aluminium sheet and Super Purity Aluminium for flashings and general roofwork. A self-supporting arch is constructed of curved industrial trough section "Rigidal," and other types of the sheets in different surface finishes are displayed. (Stand N, 273.)



The steel frame exhibited by Brockhouse Steel Structures, Ltd., 25 Hanover-square, W1, is an example of a prefabricated braced structure designed on a 3 ft. 4 ins. horizontal grid. The structural components are designed to permit architectural flexibility, and the structure allows for cavity wall construction and cladding such as concrete slabs, asbestos sheets or timber. Internal linings and partitions may be formed from various proprietary materials, and standard 4½ in.-sq. stanchions are used throughout to standardise the fitting of internal door and window frames. The roof consists essentially of reinforced wood wool slabs, screeded and felted, and the ceilings may take the form of suspended slabs when fire protection is necessary. This type of structure lends itself to rapid erection and accurate alignment. (Stands 624 and 625.)

The exhibits of **Fredk. Braby and Co., Ltd.,** 352-364 Euston-road, NW1, include a range of metal windows in steel and aluminium for public buildings such as offices, schools, hospitals or showrooms. Also displayed is "Wallstruct" curtain walling, which allows external walls to be entirely of metal framework and glass, and consists of aluminium extrusions 4 in. deep, which can be designed to meet all requirements for ventilation, insulated dado panels and insulight glazing. The "Bar-Form" metal partition is featured, and is suitable for subdividing offices and hospitals, being constructed of aluminium alloy extrusions. Among the other items displayed is dovetail steel sheeting, suitable for the construction of floors, walls, partitions or stair balustrades. (Stand H, 185).

The latest developments in modern roof construction can be seen on the stand of **William Briggs and Sons, Ltd.,** Vauxhall-grove, SW8, including "Bitumetal" roofs. Five types of



A two-module section of one of their prefabricated aluminium alloy buildings, typical of which is this 15-classroom school erected at Findon, Australia, is being featured by Hawksley SMD, Ltd., 2, Buckingham-avenue, Slough, Bucks. Using a special panel-type of construction these general-purpose units can be used for all types of buildings, including houses, offices and hospitals. Details of other aluminium work produced by the company is being shown, such as the "Alframe" bungalow and storage building, sliding doors, crane jibs and aircraft hangars of up to 200 ft. clear span with 50 ft. clear height. (Stand 619.)

aluminium decking are now available in this range, comprising three standard decks and two shallow decks, capable of spanning up to 10 ft. The ceiling effect on the stand shows the full span of all the company's decks, and full scale models demonstrate insulation and weather-proofing qualities. A special section deals with interstitial condensation. An innovation this year is Briggs' mineral strip roofing, comprising lengths of mineral-surfaced roofing laid in a tile-like formation. A variety of coloured surface finishes can be obtained, each one permanent and unfading. (Stands B, 32 and 33).

The two-tier stand of **The Expanded Metal Co., Ltd.,** Burwood House, Caxton-street, Westminster, SW1, has been designed by R. H. Treleaven, FRIBA, and houses an extensive display of expanded metal products for building and structural work. For the first time at this exhibition, "Expamet" casing bead, screed bead and picture rail, as well as angle bead, is being demonstrated. For plaster construction there is a technical display showing how "BB" Lathing and "Rib-Lath" is used to form backgrounds for plaster suspended ceilings and partitions. Also on view is "Exmet" reinforcement for brickwork, and expanded metal wall ties. Anodised expanded aluminium is used as a decorative ceiling on the ground floor of the stand, and the staircase to the upper floor is made of tubular steel with flattened "Expamet" for balustrading, with the company's standard stair-treads. Other exhibits include open floors and walkways, and foundation bolt boxes. (Stands E, 95 and 96.)

The central feature of the exhibit of **B. Finch and Co., Ltd.,** Barkingside, Essex, is a display of the new soil and waste fittings developed by the company's research division, after close study of the new trends in "above ground" drainage systems. The fittings are incorporated in specimen stacks to show their application. A display of malleable iron pipe fittings is included, and the "Clofit" standardised system of cloakroom fittings is shown for both school and industrial applications. A section is devoted to "Unimer" tubular steel buildings. Constructed on a framework of tubular steel, these prefabricated buildings are designed for low cost and speedy erection with the minimum of labour. The Finch fuel hopper is also demonstrated and is designed primarily for blocks of flats. (Stands A, 12, 13 and 14.)

The display of **Gardiner Sons and Co., Ltd.,** 8 William IV-street, Strand, WC2, has been designed to show by photography the company's many activities. These include the design and fabrication of a large tonnage of structural steelwork, including their "Thermagard" Mark 111 system of construction for schools. Considerable contracts for purpose-made steel and aluminium windows are carried out every year, and skilled craftsmen are employed in the design and production of high-class ornamental wrought ironwork, gates and balustrading. One department executes bronze plaques, memorial tablets and handrails as well as other examples of fine art in non-ferrous metals. (Stand D, 89).

The new type of manhole and cover now incorporated in their hot water cylinders is being featured for the first time by **G. A. Harvey and Co. (London), Ltd.,** 58 Victoria-street, SW1. The main advantage of this design is that by preventing the thread of the bolts from coming into contact with water, corrosion and the consequent risk of shearing the heads of the bolts has been eliminated. No jointing material is required when fixing the cover, as an india rubber ring is supplied as a seal. Also displayed for the first time is a range of perforated plastic panels for use as grilles, ventilating panels or radiator covers. The stand also features a range of cable fixing trays, mild steel rainwater goods (manufactured to BSS 1091), galvanized tanks, cisterns and cylinders. A wide variety of sheet metal ventilators procurable from this company are also on view. (Stands G, 150 and 151.)

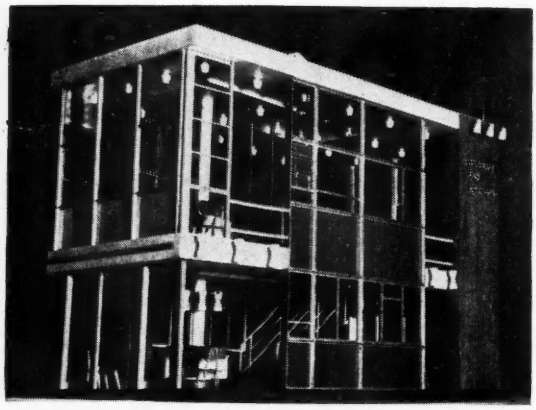
The main feature of the exhibits of **Holloway Metal Roofs, Ltd.,** 44-46 Queensland-road, Holloway, N7, is their copper and zinc roofing, using traditional gauges of the metals. The copper roofing is shown laid with a standing seam and roll cap, while the zinc is fixed in conjunction with wood rolls. Examples of zinc and copper rainwater goods and the use of copper expansion strip is also shown. (Stand 462).

On view at the stand of **Johnson's Reinforced Concrete Engineering Co., Ltd.,** Artillery House, Artillery-row, SW1, is a demonstration roll and photographs of their reinforcing fabric made of hard drawn wire to British Standards Specification, electrically welded at all sections. This is used in place of other forms of reinforcement, as the high tensile wire from which it is made saves steel when compared with ordinary mild steel. "Bricktor" wall reinforcement is portrayed both as reinforcing for brick walls over window openings, and replace a lintol, and also for strengthening corners and joints in brickwork. It can also be used on bad subsoil where settlement is likely to occur. (Stand C, 45.)

Burton's patent "Double-Grip" system for scaffolding and tubular structures is featured by **The London and Midland Steel Scaffolding Co., Ltd.,** 6, Lygon-place, Westminster, SW1, in addition to scaffolding, storage racks, sheds and other temporary buildings. A wide range is shown of steel scaffolding fittings made to comply with British Standard Specifications—and also on show are the new "Quiklock" adjustable steel trestles in four sizes. (Stand G, 159).

The "Metsec" prefabricated building technique forms the main exhibit at the stand of **Metal Sections, Ltd.,** Oldbury, Birmingham. The basic design centres round three-pin arches prefabricated from cold-roll formed sections, which have a high strength/weight ratio. Stiffeners are inserted in the main frame sections so that stress is constant throughout the framework. "Metsec" buildings are manufactured from mild steel or high tensile low alloy steel with a corrosion resistance factor four to six times greater than that of normal structural steel. The arches are delivered to the site in four parts, comprising two rafters and two legs, and site assembly and erection can be carried out by relatively unskilled labour

A new aluminium building sheet with concealed fixing has been introduced by the Northern Aluminium Company, Ltd., Bush House, Aldwych, WC2. Noral "Snaprib" sheet, as it is called, incorporates an unobtrusive snap-joint along the full length of overlapping corrugations, and is secured to the purlins by concealed clips. It therefore provides a continuous metal cladding with no holes or fixings exposed to the weather, and is virtually leak-proof, no drilling or precise location being necessary. The system lends itself to under- or over-purlin insulation, and is available in natural finish; "Pyluminised" to give a matt grey finish; or "Alocromed" to produce a light green tint. (Stand 639.)



The display stand of Williams and Williams, Ltd., Victoria House, Southampton-row, WC1, has been designed by Yorke, Rosenberg and Mardall, F/ FRIBA, and an example of nearly every product of the company has been used in its construction. "Wallspan" curtain walling forms the outer walls into which are fitted windows in steel, bronze and aluminium. "Aluminex" glazing is used for the rooflight over the stairs and "Teleflex" remote control gearing operates inaccessible ventilators. Specimens of pressed steel doors and partitioning are also on show. (Stand D, 83.)

without elaborate equipment. The building is lined, insulated and sheeted by the same gang of men working from the outside of the building, thereby eliminating the need for interior scaffolding. A range of "Metsec" joists is also exhibited. These steel joists can be fitted with a timber fillet in top and bottom booms enabling floor or ceiling boarding to be nailed directly to the joists. Service pipes and conduit can be passed through the open web struts and the bottom boom used to support the insulation boards. (Stand G, 147.)

Chain link fencing is the main feature of the exhibit of **Penfold Fencing and Engineering, Ltd.,** 21, Northumberland-avenue, Trafalgar-square, WC2. Several runs of fencing have been erected in various heights, meshes and gauges, and single and double-leaf gates clad with chain link and framed with angle-iron and tube are displayed. Two new products introduced during the past year are on view. These are prestressed concrete posts and chain link fencing woven from stainless steel wire. (Stand B, 30.)

The three stands of **Scaffolding (Great Britain), Ltd.,** 9, Manor-road, Walthamstow, E17, feature the products of the scaffolding, shuttering and welded structures divisions of the company, including props, "Telecentres" and ancillary equipment. A new lattice shell roof is displayed, and is understood to be a flexible form of roof construction at a competitive price. "Neo Hutting" is shown by the plant division, and is based on a system of interchangeable components and patented roof construction. A combined exhibit of the ornamental ironwork and metal lathing divisions includes many forms of light steelwork and backgrounds for solid or fibrous plaster and provides an indication of the types of work undertaken. (Stands 444, F, 127 and H, 166.)

A range of structural steel work, with emphasis on their specialised lattice type and prestressed methods of construction, is featured by **Sommerfelds, Ltd.,** 167, Victoria-street, SW1, together with portable roads and surfacings. Shown for the first time is the principle of prestressed steel, designed to provide economies particularly where large clear spans are required. Among the structures to be carried out with the use of this system is a dock for BOAC Bristol Britannia aircraft. This has a 160-ft. clear span, and a model is to be seen on the stand. A range of standard lattice beams, both welded and riveted, are exhibited to show their application in lightweight roof constructions, together with different types of decking. (Stand E, 113.)

The exhibit of the **Steel Scaffolding Co., Ltd.,** 82, Victoria-street, SW1, shows a complete range of "Big Ben" tubular scaffolding fittings, cradle equipment and builders' light plant. This tubular scaffolding can also be adapted for the erection of temporary premises, storage racks, loading platforms and mobile towers. The scaffold fittings are designed to conform to the BSS requirements, and a recent improvement is the Mark 6 double-coupler in which all the advantages of the previous model are incorporated with reduced weight, thus saving time during erection. The light plant exhibited comprises tubular steel painters' trestles, adjustable steel trestle stands and props. The trestle stand is exhibited for the first time, and is designed in three sizes, each pair supporting scaffold boarded platforms. Adjustment of height is telescopic and is held by pegs fitting holes in the insert tubes. Also shown for the first time are two new forms of roofing framework consisting of space deck units, and tubular arched roofing reinforcement. (Stand D, 76.)

A wide range of the products are shown by **Stewarts and Lloyds, Ltd.,** Brook House, Upper Brook-street, W1, including black and galvanised screwed and socketed steel tubes and tubulars to BS1387; wrought fittings to BS1740; and "Security" coated glass tissue-wrapped tubes for corrosive soil conditions. Steel tubes for panel heating are displayed, as well as a wide selection of joints for gas, water and steam, including Viking Johnson couplings and "Victaulic" joists. Also on show is a range of scaffolding tubes and putlogs, "Kennington" road trestles and examples of plumbers' foundry products. (Stand R, 324.)

A varied selection of products are displayed by **Tubewrights, Ltd.,** 25, Buckinghamgate, SW1, a Stewarts and Lloyds' subsidiary specialising in the design and fabrication of welded tubular steel structures. Their display includes models of an "Arcon" saw tooth roof, a "Unimer" storage building and of "Usk" and "Brook" bridges. Full-scale examples of their welded tubular steelwork are shown in the form of house and drive gates, wheelbarrow frames and pedestrian guard railings. (Stands 542 and 544.)

A wide range of spiral balances as used in double-hung windows, serving hatches and all types of vertical sliding panels are featured by the **Unique Balance Co., Ltd.,** West Hendford, Yeovil, Somerset. This range has been increased by the introduction of a new type, a pair of which can cater for sashes weighing up to 100 lb. The company are exhibiting several types of their "Tabula" sliding chalkboards, which also employ Unique spiral balances. (Stands 505 and 507.)

An exhibition stand built from "Unimer" tubular steel components has been erected for **United Merchants, Ltd.,** 418-422, Strand, WC2, and demonstrates some of the applications of these components. The system is shown at the Exhibition for the first time, and the stand comprises purlins, columns and an 18 ft. 4 in. truss in two tiers of 20 ft. and 27 ft. heights respectively. A four-flight steel staircase (with tubular balustrade and non-slip treads and closed risers to LCC specification) is supported on "Unimer" columns, and the bracing for the structure is of tubular and lattice tubular eaves girders, inserted to show the adaptability of tubes in steel construction. One section of the stand consists of a standard 15 ft. section of an 18 ft. 4 in. span building. This houses a talkiestrip theatre and shows the use of steel sashes and doors in "Unimer" construction. Several types of sheeting are shown, including three types of aluminium. (Stands F, 125 and 126.)

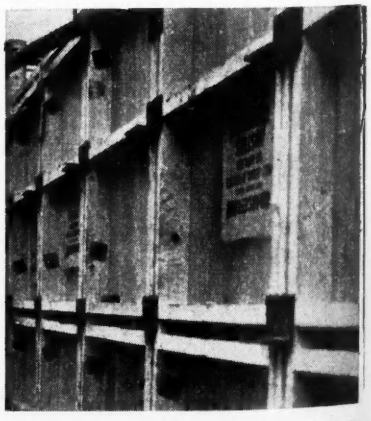
A new plastic fitting made from a stronger type of Polythene is being introduced at the Exhibition by the **Yorkshire Copper Works, Ltd.,** of Leeds, and has been specially designed for joining Polythene tubing in either normal or heavy gauge. By providing an all-plastic pipeline, the fittings (known as "Plastronga") are claimed to help resist the corrosive effects of most acids, alkalis and gases, and to require no wrapping or protection. "Polyorc A" polythene tubes to BSS 1972 and 1973 are also on show for the first time. This flexible and easily-bent tubing is particularly suitable for underground water pipelines, and resists corrosive effects as well as being non-toxic and non-contaminating. Its resilience also lessens the danger of frost bursts. The rest of the display includes a range of copper fittings now available in straight couplings, bends and tees, as well as "Yorcasal" fittings for use with waters where dezincification troubles are experienced. "Yorcalon" long-length copper tubes are also represented for use as underground water pipelines or radiant panel heating installations. (Stand G, 146.)

The stand of the **Zinc Alloy Rust-Proofing Co., Ltd.,** Shakespeare-street, Wolverhampton, shows examples of architectural ironwork rust-proofed by the "Sherardizing" process, and forms a technical information bureau where visitors can obtain particulars of the process, its cost and details of the uses to which it can be put. The company do not manufacture architectural ironwork, but specialise in carrying out "Sherardizing" for the makers of such items as steel casements, electrical conduit, iron door furniture and fittings. (Stand T, 348.)

Plant and Equipment

A one-ton capacity friction-type power winch incorporating a "Loadmaster" side runner platform hoist is exhibited by **A.C.E. Machinery, Ltd.,** Porden-road, Brixton, SW2. The hoist has special Duplex tubular mast sections on location spigots, designed for immediate coupling to scaffold towers. New handscraper winches are displayed for feeding concrete mixers, swing weigh batchers and batching plants. The winch is of special design to provide for remote control of the shovel by the operator through the medium of a push-button contact. A 5 cwt. capacity midget scaffold hoist with attachments to facilitate its use independent of a scaffold tower is shown with a base mounting to enable the unit to operate over manholes and trenches. A range of "Humdinger" concrete vibrators, with petrol or electric prime movers is shown, with various special attachments for use on column work and thin wall shuttering. (Stands O, 285 and 286.)

The stand of **E. P. Allam and Co., Ltd.,** 45, Great Peter-street, SW1, shows a selection from their range of vibrating equipment. This includes high frequency flexible drive internal vibrators which, in the primary role, develop a



This recently-introduced "Grangeform" shuttering shown by Austins of East Ham, Ltd., Barking-road, E6, is for use in concrete construction. Also on view are a range of trestles and floor centres, as well as flush and glazed entrance doors and internal flush hardboard and plywood doors. A selection of windows can also be seen. (Stands 484 and 486.)

frequency ranging between 7,000 rpm and 11,000 rpm. These are designed for the rapid consolidation and finish of all types of concrete structures and products and are available with air-cooled petrol engines or electric motors, fitted with drives of 18 ft. or 12 ft. length, or pneumatic types with rigid antivation shafts. They can be used with other tools, including grinders, drills, saws and pumps. Included is a diesel model driving two flexible shafts and vibrating units. A new product on show is a power float, so designed that it is readily converted for either single disc or trowel type floats; in addition, a power take-off is fitted. This machine has interchangeable floats, making it suitable for all types of concrete mixes and finishes. A lightweight machine is shown, designed for the smaller house builder. Pan vibrators are also shown for consolidating concrete in road repairs or for concrete floors, where portable vibration is required, as well as road vibrating tampers, comprising tamping beams fitted with antivibration handles and roller for ease of handling. (Stand R, 325.)

A standard design of roof crawling board has been developed by W. C. Youngman, Ltd., Wandsworth-road, SW8, in conjunction with the Institution of Safety Officers, to reduce accidents on site. The company are also displaying a new range of accessories, such as guard-rails and toe-boards, for their lightweight stagings, together with ladders, steps and trestles. (Stand H, 176.)

The display of the **Atlas Diesel Co., Ltd.,** Beresford-avenue, Wembley, Middx., includes two of their range of portable compressors and pneumatic tools. One of the most recently introduced is a LSS 61 grinder and sander, designed primarily for wire-brushing, cupwheel grinding and sanding. This combines a weight of only 6 lb. with a power output almost double those of earlier models of similar weight. It is fitted with a slightly longer spindle and is available in two speeds suitable for both resinoid and vitrified bond wheels. The machine can be used for cutting, notching and dressing heavy welds in addition to general grinding. Other tools exhibited include a RS9 pneumatic saw for cutting timber, asbestos and other building materials and two hammer kits designed for chipping and chase cutting. The Ecco Division is exhibiting two complete spray plants, and also on show are a trench digger, backfill rammer and centrifugal sump pump. (Stand Y, 390.)

The "Aqualev" water level exhibited by **Austin and Trimmingham**, 58, Warwick-gardens, W14, is a simple means of levelling accurately over varying distances. It comprises two 9-in. transparent sight tubes, each provided with a screw-type air vent and connected by a length of flexible tubing filled with ordinary tap water. The level of a point is transferred from one place to another by unscrewing the air vents and raising or lowering one sight tube gradually so that the water surface comes to rest level with one point, then noting the water level in the other tube. The difference in reading represents the difference in level between the two points. "Aqua-rule" attachments are available to enable one man to use the level single-handed, or for use when curved surfaces, floors and ceilings are being compared for level. An additional feature in the plastic type "Aqualev" is a rubber sealing valve which prevents air in the sight tubes being shaken down into the tubing and causing airlock. (Stand 457.)

A portable diesel-operated high frequency generating set is exhibited by **British Equipment Co., Ltd.**, Ixworth-place SW3, for use in operating high-cycle portable electric tools where a mains or high frequency supply is not conveniently available. This set has been specially designed for operating Bosch high-cycle breakers and has an output of 4 KVA three-phase 200 cycles. The range of Bosch portable electric tools on show includes an electric builders' hammer providing its own rotary movement for drilling, thus making it particularly suitable for work in awkward places. An electric breaker is displayed, providing power similar to a small compressed air hammer without the disadvantage of having to have a large compressor unit. It can be operated from a small 1 kW set, and is supplied with a universal or high-frequency motor. A deep drilling hammer, complete with blower attachment, can be inspected, capable of drilling blasting holes in rock up to a depth of 20 ft., together with a grinder for grinding down welds. (Stand H, 175.)

A full range of high quality varnish and wall brushes is featured by the **Briton Brush Co., Ltd.,** Wymondham, Norfolk, including 1106 and "Varcraft" varnish brushes, 8 oz. distemper brushes, and a variety of sash and lining tools, jamb dusters, slippers and fitches. Oval-ground paperhangers, stencil, tar and glue brushes can also be seen, as well as a feature range of painting brushes constructed from black and grey tapered nylon. (Stand T, 353.)

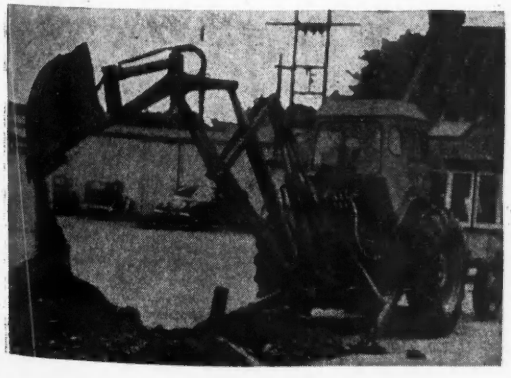
A comprehensive range of ladders are placed on view by **Cayless Bros. (Battersea), Ltd.,** Battersea Park-road, SW8, including a patent telescopic ladder. A wide range of telescopic trestles, towers, stagings, barrows and steps are featured as well as a number of types of trucks and trolleys. There can also be seen a selection of plant and equipment, including tarpaulins, dust sheets, ropes and safety belts. (Stands B, 17 and 18.)

An "OBO" non-mechanical fixing tool for hammering threaded bolts into brickwork or concrete without brittling the surface is being introduced for the first time at the exhibition by **Douglas Kane Associates**, 55, Pall Mall, SW1. Operating without cartridge or mechanical means, the tool consists of a main body with a hollow centre into which the driving pin is placed. These pins are interchangeable, and include types for large or small screw bolts or nails and washers. The bolt is placed into the base of the tool, and the driving pin is drawn back to allow the bolt to be held by two spring-loaded wedges. The tool is then held firmly against the wall at the required spot and a few blows struck on the end of the driving pin with a 2 lb. hammer in order to drive the bolt home, allowing only the thread to protrude from the wall. Nails are driven in the same manner. This type of fixing can be used on practically all structures with the exception of tiles, highly glazed surfaces or engineering brick, and the entire operation is understood to take about 30 seconds. A wide range of nuts fitting the various screw bolts is available to secure all types of saddles or pipe clips. (Stand A, 510.)

The display of **W. Kennedy, Ltd.,** West Drayton, Middlesex, features a lightweight precision power hacksaw for cutting scaffold tubing and metal pipes of all types. In operation, the engineer merely sets up the work and starts the electric motor. While the metal is being cut he is free to carry out other work. It is available as a non-powered unit with 4½ in. dia. vee-pulley for use with the purchaser's own drive, or as a fully equipped motorised unit supplied complete with 1/6 h.p. Hoover motor. Other items on view include a wide range of bending machines. (Stand K, 233.)

A recently-introduced thicknessing attachment for use on their "Multico" planers is on view at the stand of the **Kine Engineering Co., Ltd.,** Salfords, Redhill, Surrey. Fitted with quick-action clamp and mitre guide, this attachment facilitates the planing and thicknessing of even thin materials, and the cut can be controlled exactly as for surface planing. Instant setting is possible, and straight or angled tenons can be cut with speed and accuracy. The display also includes a 10 in. portable saw bench and multi-purpose machine designed for operations on site. This will cut tiles, slates, asbestos and metal, and apart from sawing timber, can be used for drilling, sanding or moulding. Among the other exhibits are a 12 in. precision saw bench with rise and fall blade and a special attachment allowing it to be used as an efficient spindle, as well as a range of planers. (Stand X, 385.)

Their complete range of "LACO" pipe bending machinery is featured by **Lawler, Ayers and Co., Ltd.,** Broad-street House, 54, Old Broad-street, EC2, together with a range of cutting tools, vices and stands. The hydraulic LH.100 "LACO" pipe bending machine is designed in its standard form for bending heavy gauge gas, steam or water barrel up to 2 in. nominal bore. The range is easily increased, however, up to 3 in. nominal bore by an additional wing head. The pump unit is designed to ensure a positive power return and accordingly will permit the automatic ejection of pipes after having been bent. A new feature incorporated in the pump unit is a relief valve to obviate any possibility of damage to the ram packings when full extension of the ram is achieved. A flat bar bending accessory can be provided for bending 4½ in. by ½ in. material to 90 degrees. A modified "Rapid-Bend" bending machine for copper or conduit up to 2 in. diameter is shown. It is claimed to bend 2 in. nominal bore copper or outside diameter conduit to an angle of 90 degrees in less than 90 seconds. A new feature is that by extending the quadrants, the machine is now capable of either right- or left-hand bending to a full 180 degrees. (Stand O, 279.)



Two models of the "Dinkum Digger" are being displayed by Whitlock Bros., Ltd., Great Yeldham, Essex. One is mounted on a Ferguson tractor, the other has been designed for attachment to a Nuffield tractor. Operation is entirely hydraulic, power being derived from a small pump mounted in front of the tractor. The hydraulic rams are mounted from the tractor's rear axle and operated by the driver. A special weatherproof cab, as shown, can also be supplied. (Stand E, 111.)

Nine engines cut-away and sectioned to show design details, together with six engines as now in supply to home and world-wide export markets, form the basis of the display by **J. A. Prestwich Industries, Ltd.,** 24, Manchester-square, W1. There are ten current types of J.A.P. engine, from a lightweight easily-portable model of only ¼ h.p. to a high speed version giving an output of 13 h.p. Among the sectioned engines is a 4½ h.p. model with a fuel consumption 0.9 pt/bhp/hr, and a weight of 122 lb. Powered by a four-stroke engine (petrol or paraffin), a centrifugal clutch is available as ancillary equipment. The unit can be used for hoists, concrete mixers, dumpers, cranes and terrazzo polishers. The actual engines shown include a 1½ h.p. model with a fuel consumption of 0.8 pt/bhp/hr, and a weight of 38 lb. The four-stroke engine can use petrol or paraffin, the unit being used for hoists, pumps, concrete mixers or vibrators. This particular engine is fitted with a 4:1 reduction gear particularly suitable for concrete mixing. (Stand K, 217).

A large display of specialised veneer and plywood machinery is featured by **H. Schubert, Ltd.**, Wenlock-road, N1, with a selection of imported special-purpose woodworking machines. The exhibit includes a new motorised edge glue spreader bench mounting fitted with 12in. wide rubber-covered rollers. This machine is suitable not only for applying adhesive to the edges of flush door strips, but also veneer surfaces and plastic sheets. It has a height adjustment up to 6 in. The "Wigo" dovetail jointing and glueing press has been recently introduced to this country, and is suitable for the automatic end jointing of short pieces of timber—which might normally be waste—into useful lengths. Another new machine from the Continent is a rectangular surface planing and jointing machine for surfacing and jointing timber planks in single passage, with an automatic feeding attachment. A portable double-sided edge glue jointing frame is also on show for the first time, and is intended to replace stacking cramps, in common use for edge glue jointing. It is understood that in many cases it would also supersede the wheel-type glue clamp carriers. The frame is double-sided, carrying four clamps with a capacity of 72 in. high and 80 in. width, allowing a continuous flow of production. Also on view is a hydraulically operated sash and door cramping machine of improved design; two high speed routing machines and a low-priced double cross-cut saw. (Stands V, 365 and U, 363).

A range of "Spontex" cellulose sponges for the building and decorating trades form the main feature of the exhibit of **Sponcel, Ltd.**, 40, Chancery-lane, WC2. These industrial sponges are specially made to facilitate preparatory cleaning jobs, and made from sponge cellulose, are highly absorbent—being claimed to hold up to 25 times their own weight of water. They can be used for washing down or for mopping up wet surfaces on both interior and exterior work, and remain unaffected by mild solutions of acids and alkalis. When dirty, they can be cleaned by boiling with soda. (Stand 404).

A comprehensive range of builders' plant is being presented by **Stephens and Carter, Ltd.**, 727-761, Harrow-road, NW10, including pole sided ladders, "Simplex" and "Midland" extension ladders, "Grafton" and "Portman" lightweight extension ladders, steel adjustable props and splitheads. Tubular scaffolding is also shown, as well as trussed scaffold beams, mobile towers and travelling cradles, "Benford" concrete mixers, barrows and handcarts. Steps, trestles, lightweight stagings and paste boards are also on view, with a new "Thompson" Cornermaster Mark II brickwork profile. (Stand R, 326).

The 4 HTW hydraulic two-way "Overloader" presented by **F. E. Weatherill, Ltd.**, Tewin-road, Welwyn Garden City, Herts., is capable of discharging its load either at the rear or in front, and supersedes the earlier 4 H rear-discharge "Overloader." A discharge height of about 9 ft. at front or rear is combined with a hydraulically-controlled scoop crowding action to ensure fast or slow discharge as required. Powered by a Fordson Major diesel engine, it has a turning circle of 36 ft. Optional equipment includes a bulldozer or angledozer attachment, digger teeth and crane attachment. A 2 HCR hydraulic front-end loading shovel is also featured for the first time by the company. While closely resembling the 2H model, it incorporates several improvements, including stronger construction, faster operation and an improved scoop crowd action. (Stand X, 379).

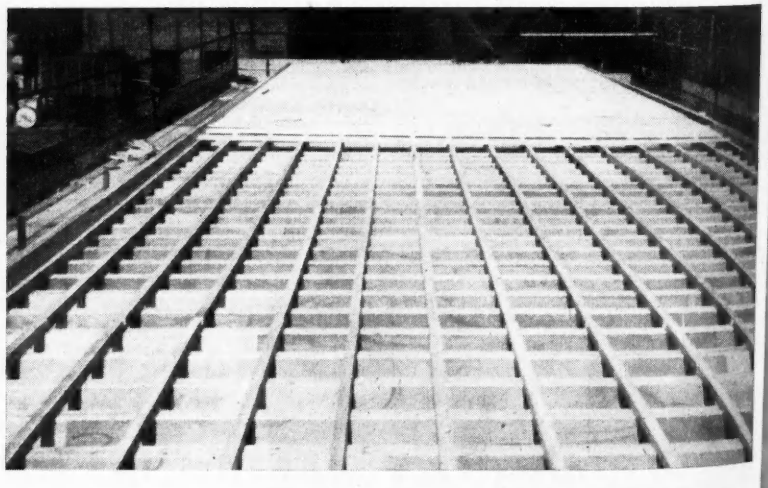
Concrete, Stone and Clay Products

Hydraulically-pressed concrete tiles, known as "Altro Non-slip Prestile" are of particular interest in the display of the **Adamite Co., Ltd.,** Manfield House, Strand, WC2. These contain quartz aggregate with "Altro" abrasive grain, and being impervious and non-slip wet or dry, they are especially suitable for floors and stairs. The company are also featuring "Vynoleum," a felt-backed general purpose floor and stair covering for domestic and medium duty installations. A range of non-slip safety treads and nosings is also on view. (Stand 565.)

A new up-and-over door has been incorporated for the first time in the Alborough precast concrete garage shown by **Associated Building Construction Developments (Raynes Park), Ltd.,** 34-35, Alpha-road, Surbiton, Surrey. This door, made of alloy, is designed in special panelled form to give a lightweight rigidity and smart appearance. Its full-scale production is not expected until early next year. The Alborough prefabricated building as used for single-storey factories or offices is displayed, its design being based primarily on a 4-ft. module. The building can be provided with spans of up to 32 ft. and the lengths are limited only to multiples of 4 ft. The prefabrication method is based on the principle of post and panel units, these posts and panels being assembled dry. The external joints are then sealed with a pressure-gun application of mastic to ensure that any movement of the building during subsequent years will not damage or interfere with the structure. The internal panels are of special lightweight concrete with high insulating value, and the roof slopes are covered with asbestos Trafford tiles. The roof framing is of mild steel welded trusses at 8-ft. centres bolted to concrete posts, and the doors and windows, together with floor finishes, can be provided to suit the client's requirements. The buildings are erected by the manufacturers themselves on sites within 50 miles radius of London—the service including site surveys and negotiations with local authorities. (Stands N, 274 and 275.)

Examples of the different types of their reconstructed stone are being presented by **John Ellis and Sons, Ltd.,** 29, Dorset-square, NW1, this reconstructed stone being manufactured with a facing of natural stone and white cement, backed with granite concrete. A variety of different exposed aggregate finishes are also displayed, and cladding panels in these finishes can be supplied to individual requirements, as well as in modular sizes to conform with the 4 in./40 in. module adopted by the Modular Society. Of particular interest are the "Stafford" unit buildings on show. These can be quickly erected up to 100 ft. in length and 28 ft. in width (single span), with heights of from 7 to 10 ft. to eaves. They are designed on a 4-ft. grid, and examples of several types are shown. "Novalux" eggshell cement finish is displayed, and is designed for application over large areas of smooth concrete, steel-trowelled renderings of flush-pointed brickwork. Understood to be impervious to the penetrations of dirt, this finish can be easily cleaned and is particularly suitable for application to barrel vaulted ceilings, tunnel linings and industrial premises. A range of "Ellicem" cement paint, "Emalux" glazed cement wall finish and granite concrete paving slabs and kerbs is also on view. (Stand O, 284.)

The stand of **Langley London, Ltd.,** 163-7, Borough High-street, SE1, has been designed in a contemporary style to show their tiles, glazed ceramic wall facings and wall screens. Six main roof display panels show some of the colours and models included in their range of clay roofing tiles. Most of the tiles are fully interlocking and show their efficiency on roofs with rafters pitched as low as 30 degrees. The main floor is covered with random marble tiles, while inset panels show ceramic tiles in a wide range of sizes and colours. Four vertical features display the practical application of glazed ceramic wall facings and plaquettes. These facings are now available with smooth or textured surface and all are understood to be frost proof and suitable for exterior as well as interior use. Two designs from their range of ceramic pierced screens are shown. These were intended initially for the export market as a decorative feature where it was necessary to keep out the direct rays of the sun while allowing free circulation of air. They are now available for the home market in either complete unit form or as individual pieces built into the finished design. (Stand F, 132.)



A new prefabricated roof unit, known as "Trofdek Super Span," is being shown for the first time in the joint display of H. Newsum, Sons and Co., Ltd., Lincoln, and Trofdek Ltd., 28, St. George-street, Hanover-square, W1. These units are a development of the "Trofdek" structural systems introduced in 1953 and "Super Span" units are designed for a minimum load of 25 lb. per sq. ft., with spans ranging from 25 to 40 ft. It is understood that tests have shown that ultimate load was five times the design load, and 40 times the self-weight of the units. The stand features a 46-ft. long "Super Span" unit, as well as sections of the standard "Trofdek" range for spans up to 24 ft. (*Stands* 610 *and* 611.)

Mechanical Equipment and Power Tools

THEIR PLACE IN THE MODERN CONTRACTOR'S BUSINESS

By E. U. Broadbent

BUILDING has this in common with gardening and football—that the casual onlooker is quickly convinced he could do it better himself! Much of it is carried out right in the public eye, so that inevitably it attracts a larger volume of amateur criticism than any other industry. One of the most common critical lines is that building methods are archaic—that the revolution which has transformed such allied industries as agriculture and heavy civil engineering has by-passed building, leaving it still relying on methods and materials familiar to our most remote ancestors.

Informed critics of the industry, while conceding that difficulties exist and that progress has been and is being made, direct their shafts rather at the reluctance of builders to take advantage of the methods and machines being developed and made available for them. A study of the equipment on show at the Building Exhibition, followed by visits to a few sites, must convince anyone that both lines of criticism are at least partially justified. It is clear that many builders either do not know what the possibilities are for mechanising their work, or knowing about them have largely rejected them for one reason or another.

Before condemning the industry as backward or lacking initiative, however, we should consider its special problems and get a clear idea of the cost of mechanising in relation to its potential advantages. The first thing to realise is that though many building components are mass-produced in up-to-date manufacturing plants, work on the site above ground level is mostly assembly, and though very large units may be assembled, with a great deal of repetition of components, the applications of mechanisation are limited to materials handling on the one hand, and the use of jigs and power tools to facilitate assembly on the other.

LINES OF ATTACK

Exceptions to this generalisation are concrete and mortar which are commonly manufactured on site, and it is a fact that the basic manufacturing process of mixing both these materials is almost universally mechanised, while the handling associated with it is still often entirely manual.

Seen through the eyes of the mechanisation enthusiast, a building job presents four major lines of attack:—

(a) Excavation and site works.
(b) Concrete manufacture.
(c) Handling of materials and components.
(d) Aids to assembly.

Of these the first two are straightforward problems in the relationship between the overhead and operating cost of a machine or combination of machines, and its utilisation and output. If the machine is to be hired, nothing more need be considered. If it is to be owned by the builder, he will have to think about its upkeep and future use. There are advantages in owning any plant for which steady employment can be foreseen, and for some where the employment will only be intermittent. Unfortunately the advantages of owning plant are easily dissipated by poor operation, maintenance and repair as well as by sloppy job-planning. A policy is therefore needed on these important matters, with adequate supervision and inspection to see that it is carried out.

The builder who habitually makes realistic calculations of plant costs and sets up a good maintenance organisation can confidently mechanise his digging and concrete production right up to the economic limit. This year the choice of machines, both for size and type, is larger than ever before, particularly as it affects the smaller job. The introduction of small hydraulically-driven trench hoes for mounting on industrial tractors has opened up a new field for mechanised digging—that of isolated small sites with foundations and minor drainage,

Concrete manufacturing plant. First stage of mechanisation. The manufacturing process (i.e., mixing) is mechanised, but the materials are manually gauged and loaded. Nine men load three 10/7 mixers for a production of 12-14 yards cu. per hour. Total labour force, including barrowmen, is 26 men.

Concrete plant. Second stage mechanisation. Crane skips replace wheelbarrows. A crane, three skips and two men replace two hoists and 12 barrowers. Labour force now 14.

where it could not pay to take a larger excavator. The alliance between 7 or 10 cu. ft. concrete mixers, portable bulk cement plants, integral weighbatchers and a drag scraper or small loading shovel has brought site manufacture of concrete under properly controlled conditions within economic range of quite small jobs.

MATERIALS HANDLING

The materials handling aspect of building site mechanisation holds out the prospect of even greater rewards, but is complicated by the need to integrate handling machinery with building design and methods. To be successful, a materials handling technique must be built into the construction layout and programmed with as much care as the finished work. This becomes obvious where a large crane or a belt conveyor system is involved; it is not so obvious and is sometimes overlooked in more modest schemes employing hoists, small power barrows, etc. Yet the latter are really important schemes, repeating themselves on job after job, year after year.

Sooner or later every builder who becomes interested in mechanised site handling finds himself wanting to redesign parts of his building, to get the best out of a promising scheme. If he is lucky he may be allowed to do so—to precast or pre-assemble certain parts, change the structural design of a floor, realign service runs or modify design to allow one section to be built before another, and so on. This leads to the conclusion that the value of mechanical handling is often lessened by particular features of the building design and therefore it lies partly in the designers' hands to stimulate or discourage it. Successful mechanisation, then, is a team effort in which owner, designers, suppliers and builders can co-operate effectively. If they do so the result will be a better, faster and cheaper job.

In working out the relative merits of different handling schemes a builder can call on the technique of Method and Works Study, to help him translate generalities into accurate plans and cost estimates, so that comparisons can be made, and the most favourable scheme

A modern Continental multi-purpose hydraulic excavator and loading shovel.

adopted. By bringing ideas down to earth and analysing them before deciding on a line of action, much subsequent expense and disappointment can be avoided.

There are, of course, a number of self-contained handling operations on any site that can be partly or wholly mechanised without affecting the job as a whole. Site haulage and general hoisting are examples. Indeed many builders—having bought a few mobile platform hoists and jib hoists, power barrows or light dumpers, and tractors and trailers—are well pleased with the savings they show and hardly notice that they are still handling their bricks and blocks three or four times, and wheeling or barrowing concrete 30 or more unnecessary yards.

The advantages of mechanised handling will not be fully realised until basic materials are on tap for delivery as required, and manufacturers are able and willing to supply them packaged or on pallets in unit loads to suit the handling system adopted. Even with our present difficulties, however, there is great scope for lowering costs by the use of available machines, allied to careful job planning.

ASSEMBLY AIDS

The last group mentioned was machines or tools to aid assembly, and can include all power tools used for cutting, fixing and finishing. The economics of power tools on a site are decidedly complicated and have been less fully studied than those of other groups. A power hammer or skilsaw or screwdriver may multiply output many times while actually in use, but circumstances do exist in which the advantage is frittered away by the operator in finding the tools, connecting them to the power supply and dealing with minor breakdowns. Experiences of this sort have led some contractors to write off all power tools as a waste of time and money, yet the fault more often lies in faulty organisation or operating technique than with the tool itself. Fore-thought in arranging the proper power supply, whether air or electricity, and in getting the right tool to the right place at the right time, coupled with good maintenance and well-trained operators has led time after time to increased production and reduced costs.

It cannot be denied, of course, that the movement of a power tool from one small job to another within a building or group of buildings is never as efficient as could be desired, and the possibility of doing as much cutting, fitting and pre-assembly as possible in a site compound is always worth examining. In these conditions power tools really come into their own as they do in any factory or workshop. Either way the use of power tools, as of mechanical handling equipment, must be related to the organisation and planning of the whole job to be fully effective.

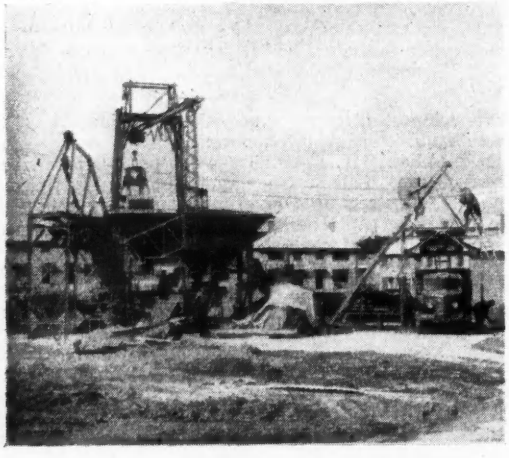
PLANNING FOR AIDS

In this brief survey of some of the possibilities of machines and power tools in a contractor's business emphasis has been given to the need for organisation and advance planning if full value is to be derived from them. If, for example, it is decided to use a mobile or stationary crane for materials handling and erection of a building, the whole site layout must first be planned to ensure access for the crane to all places where it is wanted. Materials must be stacked so that each can be unloaded and placed on the building in the right position with the minimum of crane movement. All material deliveries must be planned so that they arrive when wanted, in the right sequence, and this can be carried to the point at which some components are lifted straight from incoming transport into position on the building. The speed and sequence of building must be carefully planned to keep the load on the crane more or less even throughout its working day, and to do this a complete detailed sequence of crane movements, load by load, may have to be built up.

Handled in this way a crane can pay its way handsomely, where if set to work without planning it might prove nothing but a liability. Further advantages may be gained by extending the scope of planning to include the method of packaging and delivery of material, pre-assembly of parts of the building for crane handling, placing and following up of orders and, last but very far from least, a maintenance and repair service for the crane and other equipment working with it.

MAINTENANCE PROVISION

This service is a vital part of successful mechanisation. Whatever arrangements are made they should provide for three things—regular planned preventive main-



Concrete plant. Third stage of mechanisation. Washing plant rearranged for mechanical aggregate handling and batching. Loader shovel and weigh-batching replace hand loading. Total labour force now 7. *Output* 14-16 *yards cu. per hour.*

tenance; periodic inspection by a qualified inspector; and a repair and overhaul service.

Every machine should receive regular cleaning and maintenance, and this applies particularly to small power tools. A regular routine covering the makers' oiling and greasing instructions and minor adjustments should be laid down. Its effectiveness depends on the regularity and thoroughness with which it is observed, and experience shows that it must be supported by inspection to be fully effective. It is convenient to allot a fitter to this duty who can make running adjustments and minor replacements of worn parts at the same time. With this treatment, breakdowns involving panic repairs become infrequent, and the repair service can be concentrated on periodic overhauls. A small firm may well arrange for these to be done by the makers or agents to avoid the expense of a repair depot, but as plant holding grows, it quickly becomes good economy to set one up. It is not nowadays necessary to carry extensive stocks of spare parts but fitters tend to be acquisitive, and periodic checks should be made to see that slow-moving items are not allowed to accumulate—they may become redundant as new models replace older ones and have to be written off as total loss. The overheads of a plant depot may be kept down by limiting its activities and equipment, keeping a few spare engines and other assemblies and relying on specialist firms for major reconditioning.

USES EXTENDING

The use of machines and power tools in building is growing steadily, both as to the extent they are employed by established users and as to the number of contractors who are going in for them. Excavators, mixers, loading shovels, industrial tractors, power barrows and dumpers, hoists and many pneumatic or electric power tools are necessities now to a great many contractors, where a very few years ago they were innovations, looked upon with suspicion. The same may soon be true of mobile cranes, tower cranes, pallet trucks, bulk-cement plants, power floats and many other items of equipment, on suitable jobs.

As new materials and new techniques become established they open up new opportunities for mechanisation and there is a constant incentive to adopt it as a means of combating rising costs and the perennial shortage of men. In these circumstances it is well that every contractor should keep abreast of developments in the machines themselves and at the same time acquire a clear and true understanding of what they can do, what they will cost him and how he can employ them to the best advantage.

NEW USE FOR FLY ASH

A Promising Source of Aggregates

THERE is an increasing shortage of clinker for use as aggregate as more and more power stations turn over to using pulverised fuel. At the same time the changeover is resulting in an increasing production of pulverised fuel ash, a finely divided "fly ash" which can be disposed of only at a cost of up to 10s. per ton.

The Building Research Station, which has already shown how bricks can be made from fly ash, has now developed a process by which this former waste material can be pelletised and kilned to make good quality aggregates. One firm is to produce 65,000 tons a year of aggregates at Battersea in this way and other firms are interested in the process.

The present demand for clinker has been estimated at more than 5m. cu. yds. a year but the supply has been dropping so that some firms have already given up the manufacture of clinker products. The output of fly ash from power stations is now 2¼m. tons yearly, enough to produce 4m. cu. yds. of aggregate. This output is likely to increase to 4m. tons of fly ash yearly, sufficient to meet the expected demand for aggregate.

The process involves the pelletising of the raw ash with water in a rotary pelletiser, followed by sintering in a vertical kiln. No fuel costs are incurred in operating the kiln as the fly ash itself contains about 5 per cent. unburnt fuel, sufficient to make the pellets self-firing. At present the aggregate costs more than clinker.

Blocks made from the new aggregates have better appearance than clinker blocks, they weigh 75 lb. per cu. ft. and can withstand pressures of 1,000 lb. per sq. in. They have a low drying shrinkage and there are no concentrations of unburnt coal, lime or pyrites in them to cause troubles in completed structures.

DISTORTED CHIMNEYS

A Widespread Problem

CRACKED and distorted chimneys have to be dealt with at some time by most builders in the country. Many of them are found to be connected to slow combustion stoves. This particular trouble is widespread and, if anything, is increasing. Repairs are expensive and householders suffer inconvenience. Yet the reasons why the chimneys bend are known. Existing cases can be cured easily enough. The chimneys on new houses, if built properly, should never distort at all.

Slow combustion stoves or boilers are used in many houses nowadays. They burn for long periods at a fairly low temperature and consequently the flue gasses escaping up the chimney contain a high proportion of moisture. When the gases reach the cool part of the stack the moisture condenses and runs down the surface of the bricks inside. Sulphates in the bricks are washed out, seeping into the mortar joints. The joint's attacked by the sulphates expand and split, thus distorting the chimney brickwork. The liquid condensed on the inside of the stack also contains tarry substances from the smoke. This is the reason for the appearance of brown marks on bedroom ceilings. The moisture, running down, carries the tars with it and stains the plaster. Often these stains are the first indication of chimney trouble, but the type of damage caused is easy for inexperienced people to confuse with that due to leaking roofs.

The remedy is to line the chimney with asbestos cement pipe or glazed stoneware. This is an easy building job and is completely effective. New chimney stacks should have a glazed stoneware lining set in at the time the house is built.

The extent of the problem can be seen in many new housing estates. Some in the London area have as many as 80 per cent. of houses affected. So far, the South has suffered most, but now that slow combustion stoves are becoming more popular in the North, the trouble is spreading there. The National Federation of Building Trades Employers, working in collaboration with the Building Research Station, has recently sent out a questionnaire to builders asking for their experience in dealing with the problem.

Housewives can help to prevent trouble with their own chimneys by not burning wet rubbish in the stoves. This increases the moisture carried up the flue with the smoke.

MoW WINTER LECTURES

Programme for December

LECTURES to be given during December in the Ministry of Works winter season of discussion-lectures on subjects of interest to the building industry are as follows:—

December 1.—"Pipes and Pipe Laying," by N. W. B. Clarke, MICE, AMIWE, etc., Building Research Station. Technical College, Chesterfield-road South, Mansfield. 7.15 p.m.

December 1.—"Safety in the Building Industry," by J. A. Hayward, John Laing & Sons, Ltd. Schofield Technical College, Park-road, Mexborough. 7.15 p.m.

December 1.—"Plastic Pipes for Building," by J. F. Berry and C. J. Clark, of Marley Tile Co., Ltd. Technical College, School-street, Wisemore, Walsall. 7.15 p.m.

December 1.—"The Thermal Insulation of Buildings," by R. R. Houston, BSc, DRTC, vice-chairman, Structural Insulation Association. South-West Essex Technical College and School of Art, Forest-road, Walthamstow, E17. 7.15 p.m.

December 2.—"Seasoning and Preservation of Timber," by D. B. Irvin, British Wood Preserving Association. Grosvenor Museum, Grosvenor-street, Chester. 7.30 p.m.

December 2.—"Concrete Placing and Formwork," by A. B. Harman, BSc, AMICE, Research Department, George Wimpey & Co., Ltd. City College, Ipswich-road, Norwich. 7.30 p.m.

December 6.—"Vibration in Buildings" by R. J. Steffens, BSc (Hons) Eng, Building Research Station. Church Institute, Albion-street, Hull. 7.15 p.m.

December 6.—"Powered Hand Tools," by A. F. Coare, ABICC. Arthur Simms Room, YMCA, Commercial-street, Newport. 7 p.m.

December 7.—"Powered Hand Tools," by A. F. Coare, ABICC. Town Hall, Neath. 7 p.m.

December 7.—"Prestressed Concrete," by S. C. C. Bate, BSc (Eng), AMICE, Building Research Station. Mining and Technical College, Church-street, Barnsley. 7.15 p.m.

December 7.—"Essentials of Good Concreting," by D. C. McKay, BSc, MoW. Birkenhead Technical College, Borough-road, Birkenhead. 7.15 p.m.

December 7.—"Essentials of Good Concreting," by E. E. H. Bate, CBE, MC, MICE, Chief Works Engineer, MoW. Therm House, St. Aldate's, Oxford. 7 p.m.

December 7.—"Emulsion Paints," by G. W. Mack, ARIC, AInstP, Building Research Station. North Lindsey Technical College, Kingsway, Scunthorpe. 7.15 p.m.

December 8.—"Powered Hand Tools," by A. F. Coare, ABICC. Lecture Room, YMCA, Furness House, St. Peter's-street, Carmarthen. 7 p.m.

December 8.—"Defects in Brickwork," by L. W. Baldwin, Building Research Station. Willesden Technical College, Denzil-road, Willesden, NW10. 7 p.m.

December 8.—"Programming of Building Contracts," by C. N. Craig, ARIBA, Building Research Station. Portland Hall, Little Titchfield-street Polytechnic, W1. 7 p.m.

December 12.—"Modern Paints and Painting Practice," by B. Butler, director, Leyland Paint and Varnish Co., Ltd. Technical College, The Grange, Shorncliffe-road, Folkestone. 7 p.m.

December 14.—"Waste Plumbing Fundamentals," by R. A. Parker, AMICE, AMIWE, etc., Senior Sanitary Engineer, MoW. Assembly Rooms, Marketplace, Boston. 7.15 p.m.

December 14.—"Methods of Seasoning and Stress Grading of Timber," by an officer of the Timber Development Association. College of Further Education, Newtown-road, Hereford. 7.15 p.m.

December 14.—"The Thermal Insulation of Buildings," by W. S. Brydon, of Messrs. Celotex, Ltd. Technical College, Bromsgrove. 7 p.m.

The Builder

CURRENT PRICES OF MATERIALS

THE information given on these pages has been specially compiled for *The Builder* and is copyright. It is the intention that the details given should indicate fair average prices of materials, not necessarily the highest or the lowest. The prices apply to large quantities of materials loaded at works, delivered at London Stations or at site in London Area as stated. Prices for smaller quantities ex merchant's warehouse will necessarily be higher so as to include the stocking and handling costs involved. Due to the exceptional circumstances now prevailing it is recommended that the prices of materials should be confirmed by inquiry from suppliers and merchants.

AGGREGATES AND SAND

Delivered site in full lorry loads. Average of prices for Boroughs of Westminster, Paddington, Holborn and St. Pancras.

		£	s.	d.
Pit Ballast	per yd.	1	5	6
Pit Sand	,,	1	2	11
Washed Sand	,,	1	6	1
¾ in. Shingle	,,	1	2	5
¾ in. Broken Brick	,,	1	0	0
Pan Breeze	,,		10	3
Fine or Coarse Foamed Slag Aggregate (2 yds. of fine and 2.6 yds. of coarse per ton)	per ton	3	0	9

CEMENT, etc.

Including non-returnable jute sacks or paper bags.

		£	s.	d.
Best British Portland Cement. Standard Specification delivered Charing Cross area.				
6-ton loads and upwards, site	per ton	5	1	6
1 to 6 tons, site	,,	5	13	6
Rapid Hardening Cement in 6-ton loads and upwards to site	,,	5	12	0
1 to 6 tons do. site	,,	6	4	0
Aquacrete Water Repellent Cement. 32s. 6d. per ton on ordinary cement prices.				
Red, Buff or Khaki Colorcrete in 6-ton lots	,,	7	3	0
Other colours according to colour.				
In 4-ton lots from 295s. 0d. to 685s. 0d. per ton.				
White Portland Cement	,,	13	2	0
Under 1 ton	per cwt.		15	7
417 Cement (Ultra Rapid Hardening) in 6-ton lots and upwards	per ton	6	14	0
Super Cement (Waterproof), 32s. 6d. per ton above Portland Cement.				
Cullamix Tyrolean Finish, £11 5s. 0d. to £14 0s. 0d. (1-ton loads and upwards).				
Lightning and Ciment Fondu Brands High Aluminous cement, 6-ton lots and up	,,	14	8	3
Stourbridge Fireclay, 6-ton loads at Railway Depot, London	,,	6	8	9
Moler Mortar Powder for Flue Bricks (London sites)	per cwt.	1	10	0

BRICKS

Full Loads.

		£	s.	d.
First Hard Stocks	per 1,000	11	17	0
Second Hard Stocks	,,	10	16	0
Mild Stocks (Kiln Burnt)	,,	9	1	6
Mild Stocks	,,	8	16	6
All loaded free into lorry at the works. The question of haulage is still very difficult and prices must be obtained from job to job.				
2½ in. Nominal Fletton Bricks to sites in W.C. District Commons	,,	5	13	0
Cellular do.	,,	5	13	0
Keyed do.	,,	5	15	0
Rustics	,,	6	18	0
Cellular Rustics	,,	6	18	0
Single Bullnose do.	,,	6	13	0
Sandfaced	,,	7	13	0
Best Blue Pressed Staffs (London Stations)	,,	27	5	6
Do. Bullnose (London Stations)	,,	27	19	6
Blue Wire Cuts (London Stations)	,,	24	14	0
Midhurst Lime Bricks (London sites)	,,	10	8	0
Uxbridge Whites (London sites)	,,	9	11	6
Special Purpose Sandlime Bricks (London sites)	,,	7	14	0
2½ in. Best Stourbridge Fire Bricks (London stations)	,,	26	6	3
3 in. do. (London stations)	,,	31	12	0
2½ in. Moler Flue Bricks (London sites)	,,	36	0	0
2½ in. Machine-made Sandfaced Red Facings (London sites)	,,	14	8	6
2½ in. Machine-made Multi Red Facings (London sites)	,,	14	13	6
2½ in. Hand-made Sandfaced Red Facings (London sites)	,,	15	6	0
2½ in. Hand-made Sandfaced Multi-Colour Facings (London sites)	,,	16	1	0
Hand-made Sandfaced Cherry Red Facings. Berkshire district (London sites)	,,	17	5	6
Hand-made Sandfaced Multi-Colour Facings. Berkshire district (London sites)	,,	17	5	6
Rubber Bricks for gauged arches (London sites)	per 1,000	41	10	0
2⅝ in. Surrey Clamp Burnt Multi Stock Facings (London sites)	,,	13	6	0
2⅝ in. Surrey Kiln Burnt Multi Stock Facings (London sites)	,,	14	18	0
Glazed Bricks (London sites), White, Ivory, Brown—				
Stretchers	,,	64	0	0
Headers	,,	63	0	0
Quoins, Bullnose and 4½ in. Flats	,,	80	0	0
Double Stretchers	,,	85	0	0
Double Headers	,,	77	10	0
One side and two ends	,,	87	0	0
Two sides and one end	,,	89	10	0
Splays and Squints	,,	83	0	0

Cream and Buff £3 extra over White. Other colours, hard glaze, £8 10s. 0d. extra over White. All above prices plus 17½% for Best quality and plus 17½% less 10% for Second quality.

PARTITION SLABS, etc.

Delivered Central London Area. (W.C. District).

	Minimum lorry loads.			
HOLLOW CLAY PARTITION BLOCKS (Keyed)				
*2 in.	140 yds.	per yd. sup.	4	4
*2½ in.	140 yds.	,,	4	7
* 3 in. (3 cavity)	120 yds.	,,	5	4
BUILDING BLOCKS (Keyed)				
*3 in. (6 cavity)	110 yds.	,,	5	6
*4 in. (6 cavity)	95 yds.	,,	6	9
6 in. (8¾ in. × 5⅝ in.)	1,250 blocks	per 1,000	26	6	0
* Half blocks at no extra charge.				
CLINKER CONCRETE				
2 in.	100 yds.	per yd. sup.	3	9
2½ in.	85 yds.	,,	4	4
3 in.	75 yds.	,,	5	3
4 in.	55 yds.	,,	6	5
CRANHAM				
2 in.		,,	6	8
2½ in.		,,	7	4
3 in.		,,	8	7
4 in.		,,	10	7
4½ in. Load bearing quality		,,	11	8
MOLER PARTITION BLOCKS				
2 in.	150 yds.	,,	15	6
2½ in.	120 yds.	,,	15	9
3 in.	100 yds.	,,	16	0
4 in.	90 yds.	,,	19	0
LIGHTWEIGHT CONCRETE BUILDING AND PARTITION BLOCKS OF VARIOUS SOURCES OF MANUFACTURE				
2 in.	100 yds.	,,	5	9
2½ in.	80 yds.	,,	6	11
3 in.	65 yds.	,,	8	1
4 in.	50 yds.	,,	9	4
4½ in.	44 yds.	,,	10	2
6 in.	33 yds.	,,	13	8
THERMALITE PARTITION BLOCKS				
2½ in.	120 yds.	,,	6	11
THERMALITE LOADBEARING INSULATING BLOCKS				
3 in.	100 yds.	,,	8	3½
4 in.	75 yds.	,,	10	9
5 in.	60 yds.	,,	13	5
6 in.	50 yds.	,,	16	1½
8 in.	37½ yds.	,,	1	1	6
9 in.	33 yds.	,,	1	4	3½
FLOOR BLOCKS AND FILLER TILES				
3 in. Floor Blocks 12 in. by 12 in. delivered in full lorry-loads		per 1,000	33	6	0
4 in. do.		,,	35	14	0
5 in. do.		,,	42	10	0
6 in. do.		,,	47	17	0
7 in. do.		,,	58	8	0
8 in. do.		,,	68	9	0
10″ × 3″ × ⅝″ Filler Tiles in multiples of 10 tiles		per 1,000 multiples	56	15	0
12″ × 3″ × ⅝″ do.	do.	,, ,,	64	10	0
10″ × 4″ × ⅝″ do.	do.	,, ,,	71	0	0

STONEWARE DRAIN PIPES, etc.

The following are the percentages to be added to the Standard List prices delivered London Area.

	Delivered ex Merchants Wharf or Depot			
	Over 2 tons	Over 100 pieces Under 2 tons	Under 100 pieces Under 2 tons	
Best Quality	—	+117½%	+130%	
BSS Best do.	—	+10% +117½%	+10% +130%	
Tested Quality	—	+37½% +117½%	+37½% +130%	
BSS Tested do.	—	+47½% +117½%	+47½% +130%	
	Delivered ex Manufacturers' Works			
Best Quality	+85%	+105%	+115%	
BSS Best do.	+10% +85%	+10% +105%	+10% +115%	
Tested Quality	+37½% +85%	+37½% +105%	+37½% +115%	
BSS Tested do.	+47½% +85%	+47½% +105%	+47½% +115%	

STONEWARE DRAIN PIPES, etc.—*continued*

	£	s.	d.
3 in. Land Drain Pipes (in 12 in. lengths) ... per 1,000	11	3	6
4 in. do. ... ... „	14	14	6

DAMP COURSE

Hessian base bitumen 7 lb. per yd. sup. in 24 ft. rolls cut to wall widths in lots of £6 value and over delivered London area ... ... per yd. sup.		3	1
Asbestos base ditto 7 lb. per yd. sup. do. do. „		5	0
Lead lined bitumen ditto 9½ lb. per yd. sup. do. „		11	3
18 in. ×9 in. British damp course slates ... ... per 1,000	38	6	0
14 in. ×9 in. do. do. ... ... „	29	11	0
9 in. ×9 in. do. do. ... ... „	18	2	6
18 in. ×4½ in. do. do. ... ... „	17	15	6
14 in. ×4½ in. do. do. ... ... „	14	1	9
9 in. ×4½ in. do. do. ... ... „	9	7	6

STONE

Bath Stone—			
Monks Park ... ... per ft. cube		8	0
St. Aldhelm Box Ground ... ... „		9	0
Delivered in railway trucks at South Lambeth B.R. Western Region			
Doulting Stone Random Blocks. Delivered London area „		8	9
Beer Stone. Delivered London area ... ... „		8	3
Portland Stone—			
Brown Whitbed in random blocks, 20 ft. average delivered in railway trucks at Nine Elms, B.R. Southern Region ... ... „		8	3½
Yorkshire Stone—Blue Robin Hood Quality. Delivered to site London in 6-ton lots.			
9 in. × 3 in. Rubbed, weathered, throated and stooled cills ... ... per ft. cube	3	10	8
12 in. × 6 in. do. do. ... ... „	2	10	6
12 in. × 3 in. Plain coping, twice throated ... ... „	1	19	0
12 in. × 3 in. Weathered and twice throated coping „	2	12	0
14 in. × 6 in. do. do. ... ... „	2	7	0
4½ in. × 9 in. Plinth, rubbed on top and face ... „	2	2	0
3 in. sawn two sides Slabs, random sizes ... ... per ft. sup.		7	6
Templates and Cover Stones, 3 in., 4 in. and 6 in. thick, edges coped for rendered brickwork ... per ft. cube	1	5	9
Do. do. fair one edge for fair faced brickwork	1	10	6
Hard York—			
12 in. × 2 in. Square Steps, rubbed on top and edge per ft. run		9	0
14 in. × 3 in. Round-nosed Steps, rubbed on top and front ... ... per ft. cube	2	8	0
12 in. × 6 in. Plain Steps, rubbed top and front ... „	2	2	0
2 in. Rubbed and Jointed Paving, given sizes ... per ft. sup.		8	6
2 in. Sawn Paving, edges squared, in random sizes per yd. sup.	2	19	3

TILES AND PANTILES

Delivered London area by road in 6 tons or over per 1,000			
Machine-made Pantiles and French pattern Tiles from Lincolnshire district	29	8	0
Hand-made Pantiles Berkshire district	50	9	0
Hand-made Double Roman Bridgwater district	58	13	6
Hand-made 10½ × 6½ tiles Berkshire district	14	1	6
Machine-made 10½ x 6½ Staffordshire district	13	18	9
Hand-made Hip and Valley tiles per doz.	1	10	0
Machine-made Hip and Valley tiles do.	1	8	0
Concrete tiles 10½ × 6½	8	1	6
do. Interlocking (49S)	19	0	0

NOTE.—Breakage in transit, purchasers' responsibility.

SLATES

First-quality Slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate Station. Per 1,000 actual			
24 × 12	124	17	4
22 × 12	103	13	8
22 × 11	93	13	6
20 × 12	88	9	0
20 × 10	82	7	9
18 × 10	59	12	9
18 × 9	52	14	6
16 × 10	49	1	3
16 × 8	38	3	8

NOTE.—Breakage in transit, purchasers' responsibility.

TIMBER

Softwood—			
Joinery quality ... ... Ex. Wharf per standard	£110 to £135		
Carcassing quality ... ... do. „	£98 to £102		
1 in. Tongued and Grooved Flooring do. „	£108	0	0
Hardwood—			
Mahogany—African S.E. ... do. per ft. cube	1	10	0
do. Honduras do. ... do. „	3	5	0
Oak European do. ... do. „	2	5	0
do. Japanese do. ... do. „	2	10	0
do. English Logs sawn ... do. „	1	17	6
Teak 8 in. average S.E. ... do. „	3	15	0
Walnut African Logs sawn ... do. „	1	5	0

DOORS (in Lots I-11)

Delivered London area.	£	s.	d.
1½ in. 4 Horizontal Panel Pattern 4 in. deal			
2 ft. 0 in. × 6 ft. 6 in. ... ... each	1	12	0
2 ft. 3 in. × 6 ft. 6 in. ... ... „	1	13	0
2 ft. 6 in. × 6 ft. 6 in. ... ... „	1	14	0
2 ft. 9 in. × 6 ft. 6 in. ... ... „	1	16	6
2 in. do. but top panel open. Pattern 4 × G in deal			
2 ft. 6 in. × 6 ft. 6 in. ... ... „	2	9	0
2 ft. 9 in. × 6 ft. 6 in. ... ... „	2	11	6
2 in. Panel, top panel open. Pattern 2 × G in deal			
2 ft. 6 in. × 6 ft. 6 in. ... ... „	2	1	9
2 ft. 9 in. × 6 ft. 6 in. ... ... „	2	3	6

SUNDRIES

Delivered London area.			
1 in. Wood Wool Slabs, 6 ft. 0 in. × 2 ft. 0 in. in quantities of 1 ton (89 yds. to 1 ton) ... ... per yd.		5	8
1½ in. do. (67 yds. to 1 ton) ... ... „		7	4
2 in. do. (52 yds. to 1 ton) ... ... „		8	11½
2½ in. do. (45 yds. to 1 ton) ... ... „		10	3
3 in. do. (39 yds. to 1 ton) ... ... „		11	5½
Quantities under 1 ton add 1d. per ½ in. of thickness.			
½ in. imported insulation Board, quantities over 5,000 sq. ft. per 100 sq. ft.	2	2	6
¼ in. Hardboard do. ... ... „	2	1	6
⅜ in. do. do. ... ... „	3	2	6
3/16 in. Asbestos Flat Building Sheets ... ... per yd. sup.		3	5
¼ in. do. ... ... „		4	7
Roofing Felt, 1-ply ... ... „		1	6
do. 2-ply ... ... „		1	9
Best Scotch Glue in slabs ... ... per ½ cwt.	5	0	0
do. pearl ... ... „	5	5	0
Croid Glue ... ... 28 lb.	2	6	0
Cut Nails 3 in. (1-ton lots) ... ... per ton	64	10	0
do. 4 in. and up (1-ton lots) ... ... „	61	0	0
Wire Nails, 3 in. (4-cwt. lots) ... ... per cwt.	3	0	9
do. 4 in. and up (4-cwt. lots) ... ... „	3	0	3

METALS

STEEL JOISTS, ETC.

Basis Joists—			
6 in. × 5 in., 8 in. × 5 in., 8 in. × 6 in., 10 in. × 6 in. 12 in. × 6 in. plain cut to lengths delivered London area ... ... per ton	41	0	0
Extra for sizes			
3 in. × 1½ in. 4 in. × 1¾ in. ... ... „	3	10	0
3 in. × 3 in. ... ... „	2	10	0
4 in. × 3 in., 10 in. × 4½ in. ... ... „	1	10	0
5 in. × 2½ in., 5 in. × 3 in. ... ... „	1	15	0
4¾ in. × 1¾ in. ... ... „	3	5	0
5 in. × 4½ in. 7 in. × 3½ in. 13 in. × 5 in. ...per ton		15	0
6 in. × 3 in. 24 in. × 7½ in. ... ... „	2	0	0
6 in. × 4½ in. 7 in. × 4 in. 8 in. × 4 in. ... „	1	5	0
9 in. × 4 in. 10 in. × 5 in. ... ... }	1	0	0
12 in. × 5 in. 22 in. × 7 in. ... ... }			
9 in. × 7 in. 10 in. × 8 in. 12 in. × 8 in.			
14 in. × 5½ in. 14 in. × 6 in. 14 in. × 8 in.			
15 in. × 5 in. 15 in. × 6 in. 16 in. × 6 in. „		10	0
16 in. × 8 in. 18 in. × 6 in. 18 in. × 7 in.			
18 in. × 8 in. 20 in. × 6½ in. 20 in. × 7½ in. }			
Steel angles average price ... ... „	42	15	0
Steel tees average price ... ... „	43	15	0
Fabricated work delivered London—			
R.S. Joists cut and fitted ... ... „	57	10	0
Compound girders ... ... „	63	5	0
Stanchions ... ... „	68	10	0
Compound stanchions ... ... „	72	10	0
In Roof Work—Trusses and Purlins ... ... „	85	5	0
Average prices not for awkward work.			
Angle cleats and ⅝ in., ¾ in. and ⅞ in. bolts average price London area ... ...per cwt.	4	15	0

FERRO-CONCRETE BARS

Mild Steel Ferro-Concrete bars to BSS785 ex London			
Stock ⅜ in. diam., and upwards ... ... „	42	8	6
½ in. diam. ... ... per ton extra	4	7	0
5/8 in. do. ... ... „	3	7	0
¾ in. do. ... ... „	2	9	6
⅞ in. do. ... ... „	1	12	0

MILD STEEL TUBES

Tubes to BSS1387 and Fittings. List prices and following discounts:

Galvanised Tube—	W.I. Fittings	Malleable Fittings
Class A + 7½%		
Class B + 18½%	Light + 32½%	Malleable List—32½% + 40%
Class C + 35½%	Heavy + 40%	
Black—		
Class A — 14½%		
Class B — 2½%	Light + 19½%	Malleable List—32½%
Class C + 11¼%	Heavy + 27½%	

C.I. HALF-ROUND GUTTERS

Delivered London per yd. in 6-ft. lengths

	Gutters	Nozzles	Stop Ends
3 in.	3/5½	3/2	/11
3½ in.	3/10½	3/5	/11
4 in.	4/11½	3/10	1/4
4½ in.	5/5½	4/4	1/7
5 in.	6/1	4/8	1/11

METALS—*continued*

C.I.O.G. Gutters

	Gutters	Nozzle	Stop Ends
3 in.	4/7	4/1	1/1
3½ in.	5/1½	4/1	1/4
4 in.	5/8	4/4	1/7
4½ in.	6/1	4/11	1/11
5 in.	6/8	5/8	2/2

C.I. Rain-water Pipes

Per yd. in 6-ft. lengths	Pipe	Bends	Branches
2 in.	7/7	3/10	5/7
2½ in.	7/7	4/4	7/5
3 in.	8/6	5/5	8/1
3½ in.	9/8	6/4	9/8
4 in.	11/2½	7/9	11/6

L.C.C. Coated Soil Pipes

2 in.	8/7½	6/8	8/1
2½ in.	9/0½	7/4	10/1
3 in.	10/2	8/1	11/11
3½ in.	11/4½	10/1	13/11
4 in.	12/11½	11/3	16/5

Above prices for gutters, rain-water and soil pipes for under 5 cwt. lots only. Lots over 5 cwt. see List No. 3300 dated February 1, 1955, plus 7½% and tonnage allowance. 4-ton lots 5 per cent., 2-ton lots 2½ per cent.

L.C.C. Coated Drain Pipes In 9-fts.

	cwt.	qr.	lb.	per yd.	Bends	Branches
4 in.	1	1	17	27/4	19/3	34/-
6 in.	2	0	1	40/9	51/-	81/9

Asbestos Rain-water Pipes and Fittings

All less 17½ per cent. discount.

	2 in.	2½ in.	3 in.	4 in.
Pipes 6-ft. lengths ... per yd.	3/9	4/-	4/10	6/5
Shoes ... ... each	2/5	2/8	3/2	4/3
Single Branches ... „	3/9	4/6	5/4	7/6
Bends square or obtuse „	2/8	2/11	3/9	5/4
Swan Necks 4½ in. proj. „	2/11	3/9	4/3	5/11
do. 6 in. do. „	3/2	3/9	4/10	6/5

Asbestos O.G. Gutters and Fittings

	4 in.	4½ in.	5 in.	6 in.
Gutters 6-ft. lengths ... per yd.	3/7	3/11	4/8	5/7½
Drop ends ... ... each	2/10	3/4	3/10	4/7
Stop Ends ... ... „	/10	/11	1/-	1/2
Angles ... ... „	2/11	3/5	4/1	4/10
Nozzles ... ... „	2/10	3/4	3/10	4/7
Union Clips ... ... „	1/5	1/8	2/1	2/5

Asbestos Half-Round Gutters and Fittings

	3 in.	4 in.	4½ in.	5 in.	6 in.
Gutters 6-ft. lengths per yd.	2/6	2/11½	3/0½	3/7	5/-
Drop ends ... ... each	2/1	2/5	2/8	2/11	4/3
Stop ends ... ... „	/9	/10	/11	1/-	1/2
Angles ... ... „	2/5	2/8	2/11	3/2	4/3
Nozzles ... ... „	2/1	2/5	2/8	2/11	4/3
Union Clips ... „	1/-	1/1	1/2	1/4	2/-

	Per ton basis in London £ s. d.
Iron—Staffordshire Crown Merchant Quality	43 12 6
Mild Steel Bars	39 16 6
Mild Steel Hoops	41 3 6

	Ex Merchant's Stock per ton Two-ton lots £ s. d.
Soft Sheets C.R. and C.A.—	
20 gauge	52 8 6
24 gauge	54 18 6
26 gauge	57 18 6
Galvanised Corrugated sheets 6 ft. to 9 ft.—	
20 gauge	60 6 0
24 gauge	63 16 0
26 gauge	69 1 0
Galvanised flat sheets C.R. and C.A.—	
20 gauge	61 6 0
24 gauge	64 16 0
26 gauge	70 1 0

ALUMINIUM AND ALUMINIUM ALLOYS

(Base prices)		£ s. d.
Sheet BS 1470 SIC 18 SWG (36 in. wide) ...	per lb.	2 7½
Sheet BS 1470 NS 3 Utility 18 SWG (36 in. wide)	„	2 4½
Coiled strip BS 1470 SIC 18 SWG (24 in. wide) ...	„	2 6½
Coiled strip BS 1470 NS 3 Utility 18 SWG (24 in. wide)	„	2 4
Coiled strip for flashing 99.7% purity 22 SWG (12in. wide)	„	2 9
Corrugated sheet BS 1470 NS 3 Utility Circular Profile 8 ft. × 32 in. × 20 SWG	per sheet	1 8 6
Corrugated sheet BS 1470 NS 3 Utility Industrial Profile 8 ft. × 31½ in. × 20 SWG	„	1 13 9
Corrugated sheet BS 1470 NS 3 Utility Mansard Profile 8 ft. × 31½ in. × 20 SWG	„	1 7 8
Extruded section BS 1476 E1C simple moulding ...	per lb.	2 5
Extruded section BS 1476 E1C 1 in. diam. round	„	2 2½
Extruded section BS 1476 HE10WP simple angle	„	2 8
Extruded section BS 1476 HE10WP 1 in. diam. round	„	2 7
Tubing BS 1471 T1C 1½ in. O/D × 20 SWG ...	„	3 11½
Tubing BS 1471 HT10WP 1½ in. O/D × 20 SWG	„	5 2

PLUMBERS' BRASS WORK, etc.

Delivered in London area.

All per doz.	M.O.H. ½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
Screwdown bib cocks Crutch head for iron	87/-	128/8				
Toilet bib cocks for iron ...	109/-	158/5				
Screwdown stop cocks for iron	66/-	95/9	188/-	363/-	522/6	917/6
do. with two unions for lead	89/-	132/-	234/4	472/-	623/6	1389/6
Double nut boiler screws ...	18/8	26/5	47/6	48/6	67/-	93/6
Heavy Croydon ball valves ...	77/-	193/6	312/5	568/8	734/10	—
Plumbers' union brass lead to iron	19/6	23/6	38/6	52/10	70/6	165/-
	1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
Caps and screws	33/-	40/8	59/6	92/5	118/10	155/3
Brass sleeves		31/11	31/11	56/2	74/10	91/5
		1½ × 6 lb.	1½ × 6 lb.	2 × 7 lb.	3 × 7 lb.	
Lead P. trap with brass cleaning screws	66/-		82/-	131/-		224/-
Lead S. trap do.	79/-		98/-	161/-		288/-

Solder		s. d.
Plumbers'	per lb.	3 9
Tinmen's	„	4 6
Blow pipe	„	4 7

Copper Tubes and Sheets

Copper tubes BSS 659/1944 on the basic price of 42¾d. per lb. plus gauge and manufacturing extras as follows. Minimum quantities, 3 cwt.

	Extra d.		d.
¼ in. × 19 gauge	12½	Total per lb.	55½
¾ in. × 19 „	11⅝	„ „	53½
1 in. × 18 „	9⅝	„ „	52⅝
1¼ in. × 18 „	9	„ „	51½
1½ in. × 18 „	9	„ „	51½
2 in. × 17 „	10⅝	„ „	53⅛

		£ s. d.
Rolled Copper sheets up to 48 in. wide, basic price plus gauge and manufacturing extras	per ton	433 0 0

Zinc

			£ s. d.
Sheet Zinc	10 gauge (25 SWG) 5 cwt. lots upwards	per cwt.	8 11 6
do.	12 gauge (23 SWG)	„	8 9 9
do.	14 gauge (21 SWG)	„	8 8 9

Brass Tubes

		d.
Brass tubes basic price, plus gauge and manufacturing extras	per lb.	2 9½

LEAD SHEET AND PIPES

Basis selling price in minimum one-ton delivery to one address in London or Home Counties.

		£ s. d.
Lead Sheet, English, 3½ lb. substance and upwards	per ton	143 5 0
Lead Water Pipe in coils	„	144 10 0
Lead Soil Pipe 10 ft. or over 2 in. to 4 in. dia. ...	„	146 0 0
do. over 4 in. dia.	„	148 0 0
Lead Gas or Untinned Compo pipe	„	146 0 0
Extras over Basis for quantities under 1 ton		
5 cwt. and under 1 ton	per cwt.	2 0
3 cwt. do. 5 cwt.	„	4 0
1 cwt. do. 3 cwt.	„	6 0

Smaller quantities than 1 cwt. priced specially.
Supplying sheet lead and lead pipe to less than basis weights and cutting to sizes less than basis charged extra according to current trade schedule.
Allowance for Old Lead, collected £98 10s. 0d. per ton weighed at buyer's works.

PLASTER, etc.

		£ s. d.
Coarse Pink in 1-ton loads and over Delivered on Site	per ton	7 11 9
do. White do. do. ...	„	7 19 6
Sirapite Coarse do. do. ...	„	7 14 0
do. Fine do. do. ...	„	8 2 0
Blue Lias Lime in 6-ton loads	„	6 14 6
Hydrated Lime do.	„	5 17 6
Lump Lime do.	„	5 7 0
White Keen's or Parian Cement in 1-ton loads ...	„	10 17 0
Pink Keen's or Parian Cement in 1-ton loads ...	„	10 11 9
Granite Chips in 6-ton loads	„	2 8 3
Hair	per cwt.	4 17 6
Gypsum Plaster Lath or Base Board ⅜ in. thick 600 yds. and over in one delivery. Delivered site ... 1,200 yds.	per yd. „	2 3½ 2 2½
Do. Insulating do. ⅜ in. thick 600 yds. and over in one delivery. Delivered site ... ... 1,200 yds.	„ „	2 11½ 2 10½
Gypsum Plaster Wall Boards, 3 and 4 ft. wide 6 to 12 ft., ⅜ in. thick, 600 yds. and over in one delivery. Delivered site ... ... 1,200 yds.	„ „	2 6½ 2 5½
Do. Insulating do. ⅜ in. thick 600 yds. and over in one delivery. Delivered site ... ... 1,200 yds.	„ „	3 2½ 3 1½

PAINT AND DISTEMPER

	£	s.	d.
Delivered London area			
Ceiling Distemper ... ... per cwt.	1	7	6
Washable Distemper ... ... ,,	5	5	0
Gloss Paint ... ... per gal.	2	10	0
Snowcem cement paint (in 1 cwt. drums) ... ... per cwt.	3	11	0
LEAD PRODUCTS AND OILS			
Ground White Lead, 1 cwt. kegs ... ... per cwt.	8	18	0
Genuine White Lead Paint, 1-19 gal. lots in 1 gal. tins per gal.	3	2	0
Genuine Red Lead, Dry, 1 cwt. keg ... ... per cwt.	7	2	0
Genuine Linseed Oil Putty, 1 cwt. keg ... ... ,,	2	11	0
Size XD quality, 28 lb. ... ... per tin		9	0
Raw Linseed Oil (5 gal.) drums extra ... ... per gal.		14	0
Boiled Linseed Oil (5 gal.) do. ... ... ,,		14	6
SUNDRIES.			
Turpentine substitute (5 gal.) drums extra ... ... ,,		5	6½
do. do. (40 gal.) do. do. ... ... ,,		4	8½
Solignum, Brown (5 gal. cans) Exterior ... ... ,,		6	10
Creosote (40 gal. barrels) ... ... ,,		2	0
Paste Powder (1 lb. packets) ... ... per lb.		1	6
White Lining Paper ... ... per piece		1	0

VARNISHES, etc.

	£	s.	d.
Delivered London area.			
Oak Varnish, Outside or Inside ... ... per gal.	1	12	6
Oak Pale Copal do. ... ... ,,	1	18	0
Hard Drying Oak for Inside ... ... ,,	2	0	0
Crystal Paper Varnish do. ... ... ,,	2	0	0
Eggshell Flat Varnish do. ... ... ,,	2	14	0
Finest Carriage Varnish ... ... ,,	2	10	0
Front Door Varnish ... ... ,,	2	0	0
Japan Gold Size ... ... ,,	1	12	6
Black Japan ... ... ,,	1	14	0
Brunswick Black ... ... ,,	1	10	0
Berlin Black ... ... ,,	1	5	0
Terebene ... ... ,,	1	8	0
Knotting (1 gal, bottles free)... ... ... ,,	2	2	0
French and Brush Polish (do.) ... ... ,,	1	18	0

GLASS

Delivered London area.	Per ft. super s.	d.
18 oz. Sheet Glass Ordinary Glazing Quality. Cut Sizes		6¾
24 oz. ,, ,, ,, ,, ,, ,,		8¾
26 oz. ,, ,, ,, ,, ,, ,,		11
32 oz. ,, ,, ,, ,, ,, ,,	1	2⅜
¼ in. Rolled Plate		9
3/16 in. and ¼ in. Rough Cast	1	1

	Per ft. super s.	d.
¼ in. Figured Rolled and Cathedral, Standard patterns: White		9
do. Standard Tints	1	4½
do. Special Tints	2	9
¼ in. Pinstripe, Hammerstripe, Reeded, Reedlyte and Luminating	1	1
¼ in. Wired Cast	1	2
¼ in. Georgian Wired Cast	1	2½
Hollow Glass Blocks—	Each	
P.B.2 5⅜ × 5⅜ × 3⅞ in.	2	9
P.B.3. 7⅜ × 7⅜ × 3⅞ in.	4	2
P.B.32 7¾ × 7¾ × 3⅜ in.	4	2
Radiused Corner Blocks to match up with—		
P.B.2	5	3
P.B.3	6	9
P.B.32	6	9
¼ in. Polished Plate Glass, G.G. Quality—	Per ft. super	
In plates not exceeding 2 ft. sup.	3	7
,, ,, ,, 5 ft. sup.	4	5
,, ,, ,, 45 ft. sup.	5	1
,, ,, ,, 100 ft. sup.	5	6
¼ in. Polished Plate, extra sizes, *i.e.*, plates exceeding 100 ft. sup. or 160 in. one way or 96 in. both ways. G.G. quality —Not exceeding 135 ft. sup. or250 in. one way or 135 in. both ways	8	4
Not exceeding 180 ft. sup. or ditto	11	3
Not exceeding 200 ft. sup. or ditto	16	0
Plates exceeding 200 ft. sup., prices on application.		
Substances other than ¼ in. Polished Plate at Special Prices.		

Quantity Tariff—Sheet and Sundry Glass.

The following prices apply to minimum quantities of one size and one pattern delivered by the manufacturer to one site at one time.

Description of Glass	Minimum quantity	Per ft. sup. s.	d.
18 oz. sheet O.Q.	3,000		4⅞
24 oz. ,, ,, ...	2,000		6⅝
26 oz. ,, ,, ...	2,000		8⅜
32 oz. ,, ,, ...	2,000		11⅛
¼ in. Rolled Plate	1,000		7½
⅜ in. Figured Rolled and Cathedral Standard Patterns, White	1,000		7⅛
¼ in. Pinstripe, Hammerstripe, Reeded, Luminating and Spotlyte...	1,000		10½
3/16 in. and ¼ in. Rolled Plate or Rough Cast ...	2,000		11
¼ in. Wired Cast, Hexagonal...	2,000		11⅞
¼ in. Georgian Wired Cast	2,000	1	0⅜

The Builder
CURRENT RATES OF WAGES

AS FROM OCTOBER 3, 1955. **(Every endeavour is made to ensure accuracy but we cannot be responsible for errors.)**

KEY TO SCHEDULE OF GRADE RATES.

Grade Classification.	A	A1	A2	A3
Craftsmen	4/-	3/11½	3/11	3/10½
Labourers	3/5½	3/5	3/4½	3/4

Town.	*Grade.*
Aberavon	A
Aberdare	A
Abergavenny	A
Abingdon	A2
Accrington	A
Addlestone	A
Afan Valley	A
Aldeburgh	A1
Aldershot District	A1
Alfreton UD	A
Alnwick UD	A
Altrincham	A
Amble	A
Ambleside	A2
Amersham	A1
Ammanford	A
Andover	A2
Anglesey, Isle of	A2
Ardingly	A2
Arundel	A2
Ascot	A2
Ashbourne RD	A2
Ashbourne UD	A2
Ashby-de-la-Zouch UD	A
Ashby Woulds UD	A
Ashford (Kent)	A2
Ashford (Middlesex)	A
Ashington UD	A
Ashtead	A
Ashton-under-Lyne	A
Aspatria and Brayton	A2
Atherstone RD	A
Attleborough	A2
Axminster	A2
Aylesbury	A2
Aylesham	A2
Bagshot	A2
Bakewell UD	A2
Banbury	A1
Bangor	A2
Barnard Castle UD	A
Barnoldswick UD	A
Barnsley CB	A
Barnstaple	A2
Barrow-in-Furness	A
Barrow-upon-Soar RD (exc. Thrussington A2)	A
Barry	A
Basford RD (exc. Willough-by-on-the-Wolds A1)	A
Basingstoke	A1
Bath	A
Batley MB	A
Baxterley	A1
Beaconsfield District	A
Bearl	A
Beccles	A2
Bedale RD	A
Bedford	A
Bedlington	A
Bedlingtonshire UD	A
Bedwas	A
Beeston & Stapleford UD	A
Belper UD	A
Belton	A
Berkhamsted	A
Berrington	A1
Berwick Borough	A
Beverley MB	A
Bewdley MB	A
Bexhill-on-Sea	A2
Bideford	A2
Biggleswade	A2
Billericay	A
Billing	A
Billingham UD	A
Bilsthorpe	A
Bilston MB	A
Birchington	A2
Birkenhead	*
Birmingham CB	†A
Bishop Auckland UD	A
Bishop's Stortford	A
Bishops Castle MB	A2
Bispham	A
Blackburn	A
Blackpool	A
Blackwell RD	A
Blandford	A2
Blaydon UD	A
Blidworth	A
Blyth B.	A
Bodmin	A2
Bognor Regis	A2
Boldon UD	A
Bolsover UD	A
Bolton	A
Boston MB	A
Bourne End	A
Bournemouth District	A
Brackley MB	A2
Bracknell	A2
Bradford CB	A
Bradford-on-Avon	A2
Braintree	A1
Brandon & Byshottles UD	A
Brecon—Borough of	A1
Breconshire, County of ...	‡A2
Brent Knoll	A2
Brentwood	A
Bridgend	A
Bridlington MB	A
Bridlington RD	A1
Bridgnorth MB	A1
Bridgnorth RD	A2
Bridgwater	A1
Brierfield	A
Brighouse MB	A
Brighton & Hove	A
Bristol District	A
Broadstairs	A2
Bromsgrove UD	A
Broughton, Flint	A
Buckfastleigh	A2
Buckingham	A2
Buckley	A
Bungay	A2
Burnham-on-Crouch	A2
Burnham-on-Sea	A2
Burnley	A
Burton-on-Trent C.B.	A
Bury	A
Bury St. Edmunds	A1
Buxton	A
Byfleet	A1
Caernarvon	A2
Caernarvonshire, Cnty. of	‡A2
Calder Valley	A
Camberley District	A2
Cambridge	A
Cannock UD	A
Canterbury	A2
Cardiff	A
Cardiganshire, County of	‡A2
Carlisle	A

Continued on page 900

CURRENT RATES OF WAGES—Continued

Town.	Grade.
Carlton UD	A
Carmarthen—Borough of	A1
Carmarthenshire, Cnty of ‡	A2
Carnforth	A
Castleford UD	A
Caterham	A
Chapel-en-le-Frith	A
Chard	A2
Charmy Down	A
Chatham District	A
Chatteris	A2
Cheadle (Staffs) RD	A
Chelmsford	A
Cheltenham	A
Chepstow	A1
Chertsey	A
Chester	A
Chester-le-Street UD	A
Chesterfield MB	A
Chesterfield RD	A
Chichester	A2
Chipping Norton	A2
Chipping Sodbury	A2
Chippenham (inc. Chippenham Within and Hardenhuish)	A2
Cirencester	A2
Chorley	A
Clacton	A1
Clay Cross UD	A
Cleethorpes MB	A
Clevedon	A1
Cleveleys	A
Clitheroe	A
Coalville UD	A
Cobham (Surrey)	A
Colchester	A
Colne	A
Colwyn Bay	A1
Congleton	A1
Consett UD	A
Conway	A1
Corby UD	A
Cornwall, County of	‡A2
Corsham District	A
Coventry CB	A
Cranbrook	A2
Cranleigh	A2
Cranwell Aerodrome Site	A1
Crawley	A
Crewe	A
Crewkerne	A2
Cromer	A1
Crook and Willington UD	A
Crowborough	A2
Cuckfield	A2
Cwmbran	A
Dalton-in-Furness	A
Darlington CB	A
Dartmouth	A2
Darwen	A
Daventry MB	A2
Deal	A2
Denbigh Town	A2
Derby CB	A
Devizes	A2
Devon, County of	‡A2
Dewsbury CB	A
Didcot	A2
Diss	A2
Doncaster CB	A
Dorchester	A2
Dorking	A
Dorset, County of (except-ing Poole, Swanage and Wimborne A1)	A2
Dover	A2
Dovercourt	A
Driffield UD	A1
Drigg & Carleton	A
Droitwich MB	A
Dudley CB	A
Dunstable	A
Durham B	A
Eastbourne	A
E. Glam. & Mon. Val.	A
East Grinstead District	A2
East Kesteven RD	A2
East Retford MB	A
Eastwood (Notts) UD	A
Ebbw Vale & District	A
Edenbridge	A2
Ely	A2
Epping	A
Evesham MB	A2
Exeter	A
Exmouth	A2
Fakenham	A2
Falmouth	A2
Fareham	A
Faversham	A2
Felixstowe	A1
Filey UD	A
Fleetwood	A
Flint MB	A
Folkestone	A2
Frinton	A1
Frome	A1
Gainsborough UD	A
Gateshead CB	A
Gillingham (Dorset)	A2
Gillingham (Kent)	A1
Glastonbury & Street	A2
Glossop	A
Gloucester	A
Gloucestershire, Cnty. of ‡	A2
Godalming	A2
Goole, MB	A
Goole RD (part—Airmyn, Hook)	A
Gosport	A
Grantham MB	A
Gravesend	A
Grays Thurrock UD Area	A
Great Yarmouth	A
Grimsby CB	A
Grimsby RD (part)	A
Guildford District	A2
Halesowen MB	A
Halifax CB	A
Halstead	A2
Haresfield	A1
Harlow	A
Harpenden	A
Harrogate MB	A
Hartlepool B	A
Harwell	A2
Harwich	A
Haslemere	A2
Hastings	A2
Hatfield (Herts)	A
Havant	A
Haywards Heath	A2
Heanor UD	A
Hemel Hempstead	A
Henley-on-Thames	A2
Hereford	A2
Herefordshire, Cnty. of	‡A2
Herne Bay	A2
Hertford	A
Hexham RD	A
Hexham UD	A
Heysham	A
Heywood	A
Higham Ferrers MB	A
High Wycombe	A
Hinckley UD	A
Hitchin	A
Hoddesdon	A
Holywell	A
Horley	A2
Horncastle UD	A2
Horsham	A2
Horwich	A
Huddersfield CB	A
Hull	A
Hunstanton	A2
Huntingdon (Staffs)	A
Ilkeston MB	A
Ilkley UD	A
Ipswich	A
Isle of Sheppey	A2
Isle of Thanet	A2
Isle of Wight	A2
Ilfracombe	A2
Jarrow B	A
Keighley MB	A
Kendal	A
Kenilworth UD	A
Kettering MB	A
Keynsham	A
Kidderminster MB	A
Kingskerswell	A1
King's Lynn	A1
Kingsteington	A1
Kirkham	A
Knaresborough UD	A
Knutsford	A
Lancaster	A
Leamington MB	A
Leatherhead	A
Leeds CB	A
Leek UD	A
Leicester CB	A
Leighton Buzzard	A1
Leiston	A2
Leominster	A2
Letchworth	A
Lewes	A2
Lichfield MB	A
Lincoln CB	A
Liskeard	A2
Littlehampton	A2
Liverpool	*
Llandudno	A1
Llanelly (incl. Llanelly RD)	A
Llanfairfechan	A2
Llangollen	A2
London	*
Long Eaton	A
Looe	A2
Loughborough MB	A
Louth MB	A1
Lowestoft	A
Loxton	A2
Ludlow MB	A2
Ludlow RD	A2
Luton	A
Lyme Regis	A2
Lyneham (Devon)	A2
Lytham	A
Macclesfield	A
Maidenhead	A
Maidstone	A
Maldon (Essex)	A1
Maltby UD	A
Malton UD	A2
Malvern UD	A1
Manchester	A
Manningtree	A1
Mansfield MB	A
March	A2
Margate	A2
Market Harborough RD	A1
Market Harborough UD	A
Market Rasen UD	A2
Martock	A2
Maryport	A
Matlock UD	A
Melksham	A2
Melton Mowbray UD	A1
Merionethshire	A2
Merthyr	A
Mexborough UD	A
Middlesbrough CB	A
Middleton	A
Middlewich	A
Mildenhall	A2
Milford Haven UD	A1
Minehead	A2
Monmouth—Borough of	A1
Monmouthshire	A1
Morecambe	A
Moreton Valence	A2
Morley	A
Morpeth B	A
Morpeth RD	A
Mundesley	A2
Nantwich	A
Neath & Valley	A
Nelson	A
Newark MB	A
Newbury	A2
Newcastle-on-Tyne CB	A
Newcastle-under-Lyme	A
New Forest District	A1
Newmarket	A1
Newport, Mon.	A
Newport Pagnell	A2
Newquay	A2
Newton Abbot	A1
Normanton UD	A
Northallerton District	A
Northallerton UD	A
Northampton CB	A
North Shields	A
North Walsham	A2
Northwich	A
Norton Radstock	A1
Norwich	A
Nottingham CB	A
Nuneaton MB	A
Oakham RD	A2
Oakham UD	A2
Okehampton	A2
Oldham	A
Ongar	A
Ormskirk	A
Ossett & Horbury	A
Oswestry	A2
Oundle UD	A2
Oxford	A
Oxted	A1
Padstow	A2
Paignton	A1
Par	A2
Pembrokeshire (except Milford Haven)	A2
Penmaenmawr	A2
Penrith UD	A1
Penzance	A2
Peterborough, Soke of (Eastern Regional portion)	A1
Petersfield	A2
Pickering	A2
Plymouth	A
Pontefract MB	A
Pontypool & District	A
Pontypridd District	A
Porthcawl	A
Portishead	A
Portland Bill	A1
Portsmouth	A
Port Talbot	A
Preston	A
Princetown	A2
Pudsey MB	A
Pulborough	A2
Radnorshire, County of	‡A2
Ramsgate	A2
Raunds UD	A
Rayleigh	A
Reading	A
Redcar B	A
Redditch UD	A
Redhill & Reigate	A
Rhondda Valley	A
Richmond B (Yorks)	A
Ripon MB	A2
Rochdale	A
Rochester	A1
Ross-on-Wye	A2
Rossendale Valley	A
Rotherham CB	A
Royston	A1
Rugby MB	A
Rugeley UD	A1
Rushden UD	A
Saffron Walden	A2
St. Albans	A
St. Austell	A2
St. Helens	A
St. Neots	A2
Salisbury City	A2
Salisbury Plain	A2
Sandy	A2
Sawbridgeworth	A
Saxmundham	A2
Scarborough MB	A
Scunthorpe MB	A
Seaford & Newhaven	A2
Selby UD	A
Sevenoaks	A
Shaftesbury	A2
Sheerness	A2
Sheffield MB	A
Shepton Mallet	A2
Sherborne	A2
Shipley	A
Shoeburyness	A
Shoreham	A
Shrewsbury MB	A
Sirhowy Valleys	A
Sittingbourne	A2
Skegness UD	A1
Skipton UD	A
Sleaford UD	A1
Slough, Windsor & Eton District	A1
Smethwick CB	†A
Snittisham	A2
Solihull UD	A
Somerset, County of	‡A2
Southampton and Eastleigh	A
Southend-on-Sea Dist.	A
Southport	A
South Shields CB	A
Southwold	A2
Spalding UD	A1
Stafford MB	A
Staines	A
Stamford MB	A1
Stantonwick	A
Stevenage	A
Stockport	A
Stockton RD	A
Stockton-on-Tees B	A
Stoke-on-Trent CB	A
Stoke Orchard	A1
Stourbridge MB	A
Stourport UD	A
Stowmarket	A1
Stratford-on-Avon MB	A
Stroud (RD Area)	A1
Sunderland CB	A
Sunningdale	A1
Sutton Coldfield MB	A
Swadlincote UD	A
Swaffham	A2
Swanage District	A1
Swansea	A
Swindon District	A
Swinton UD	A
Tamworth MB	A
Taunton	A2
Tavistock	A2
Tenterden	A2
Teignmouth	A2
Tewkesbury	A1
Thames Haven	A
Thetford	A2
Thirsk RD	A
Thorpe Bay	A
Thurrock UDC Area	A
,, North of to Billericay	A
Tilbury	A
Todmorden MB	A
Tonbridge	A1
Torquay	A1
Totnes	A1
Tring	A2
Trowbridge	A2
Truro	A2
Tunbridge Wells	A1
Tynemouth CB	A
Ulverston	A
Uppingham (Salop)	A1
Uttoxeter RD	A2
Uttoxeter UD	A1
Wakefield CB	A
Wakefield RD	A
Wallsall CB	A
Wallsend B	A
Walsden	A
Walton-on-Naze	A1
Ware	A
Warminster	A2
Warrington	A
Warwick MB	A
Wednesbury MB	A
Wellingborough UD	A
Wellington UD	A
Wellington (Somerset)	A2
Wells (Norfolk)	A2
Wells (Somerset)	A2
Welwyn	A
Welwyn Gar. City	A
West Bromwich CB	A
Westbury	A2
Westcliff-on-Sea	A
Westerham	A1
West Hartlepool CB	A
Westmorland (except Kendal)	A2
Weston-super-Mare	A1
Weybridge	A
Weymouth (including Portland Bill, excluding Portland Stoneyards)	A1
Whitby UD	A1
Whitby RD	A1
Whitehaven	A
Whitley & Monkseaton UD	A
Whitstable and District	A2
Wickford	A
Widnes	A
Wigan	A
Wigton	A2
Wilmslow	A
Wilts. County of	‡A2
Wimborne	A1
Wincanton	A2
Winchester	A1
Windermere	A2
Wisbech	A2
Witham	A1
Withernsea UD	A
Woking	A1
Wokingham	A2
Wolverhampton CB	A
Wolverton District	A2
Woodbridge	A2
Woodhall Spa UD	A
Woodstock	A2
Worcester CB	A
Workington	A
Worksop MB	A
Worthing	A2
Wrexham (incl. Cefn)	A
Wroughton	A1
Wylam	A
Wymondham	A2
Yate	A2
Yeovil Borough	A1
York CB	A
Ystalyfera	A

For Birkenhead, Liverpool and London the rates are:—Craftsmen, 4s. 1½d.; Labourers, 3s. 7d. In the case of London the rate beyond the 12-mile radius is:—Craftsmen, 4s. 1d.; Labourers, 3s. 6½d. †Plus 2d. per working day. ‡This is the County rate and applies except where higher grades are stated.

NOTE.—Carpenters and Joiners providing own tools when employed in establishments operating under the Supplementary Rules for Woodworking Factories and Shops, receive 2d. per day; when employed on other building industry work, 4d. per day.

WOMEN'S RATES.—In all districts throughout the country the rate of wages for women engaged in craft processes is 3s. 1½d. per hour. Women engaged on work other than craft processes, 2s. 9½d. per hour.

For Building Trade Wages in Scotland see page 904

NEWS IN BRIEF

THE LATE MR. M. GRASSMAN

The death occurred on November 12, after a very short illness, of Mr. Mark Grassman, MIOB. He was 58. A director of A. E. Symes, Ltd., Mr. Grassman joined the firm 43 years ago as an apprentice carpenter. He was appointed a director of the company in 1939 and was actively engaged in its interests until a few days before his death. He will be sorely missed both by his colleagues and by the many clients who valued his practical advice and sound judgment.

STEEL PRODUCTION FIGURES

The Iron and Steel Board state that steel production in October averaged 399,500 tons a week. This compares with 374,500 tons a week in October, 1954.

MAINTENANCE COSTS

A discussion on the subject of "Building Maintenance Costs" will be held at Olympia (Conference Hall, Empire Hall Restaurant) during the Building Exhibition, on Tuesday next, November 22. Sir Thomas Bennett, KBE, FRIBA, will take the chair at 6 p.m.

CONSULAR AWARD

After 37 years as consul for the Netherlands at Plymouth, Mr. W. L. Van de Kasteele, managing director of James Bros., and Co., Ltd., timber and builders' merchants, of Devonport, resigned on October 28. On his retirement he has received the Officer's Cross of the Order of Orange Nassau in recognition of his services.

PLANNING APPEALS REJECTED

The Minister of Housing and Local Government has rejected two appeals heard in August against Meriden Rural Council's refusal to allow houses to be built outside areas scheduled for development. Mr. J. E. Chambers, of Keresley, appealed against refusal to allow 16 houses to be built in Bennetts-road, and the appeal of Mr. K. Knight concerned the council's refusal to allow him to build 51 houses in Fillongley-road, Meriden.

IRISH OIL REFINERY

A new Irish Oil Company to direct operations at the proposed £10 million refinery site at Whitegate, Cork, is to be launched within the next few weeks. Composed of British Petroleum, Caltex, Esso, Regent and Shell, the new company will first start work on the development of the 1,500-acre site, and a labour force of almost 1,000 will be employed. Completion of the scheme will take about two years.

SAND AND GRAVEL NEEDS

The Advisory Committee on Sand and Gravel, in a Report published on November 16 (Stationery Office, price 3s.), point out that a large proportion of the sand and gravel production in the gravel regions of Wales and the South-West of England, comes from sources which make no demands on agricultural land. The Committee estimate that the average annual demand for sand and gravel in these regions for the next 50 years is likely to be 2.1 million cubic yards; 1 million cubic yards from Wales and 1.1 million cubic yards from South-West England. This is the last report to be published by the Committee.

CAR PARKS AT TUBE STATIONS

London Transport announced on November 14 details of a plan to build or enlarge 20 car parks near Underground stations on arterial roads. Work will start on some of these early in 1956, and will continue as quickly as possible. The arrangement will double the present accommodation so as to give parking space for a total of 2,500 cars. Six new parks are in the list. They are at Hanger Lane (for 50 cars), North Acton (50), Redbridge (120), East Finchley (40), Neasden (30), and Leytonstone (30). Stations at which parks will be enlarged are: Hounslow West, Osterley, North Ealing, Harrow-on-the-Hill, Stanmore, High Barnet, Finchley Central, Cockfosters, Oakwood, Arnos Grove, Epping, Woodford, Newbury Park and Morden.

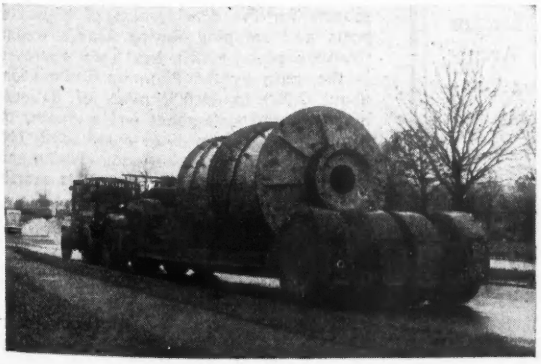
SPACE-SAVING GARAGE

A new system of multi-storage of cars to ease the car-parking problem in London and other big cities may have its first try-out in Maidstone. It is the invention of Mr. Clifford Fitch, managing director of Wire Products and Machine Design and its associate, Kingsbury Fitch. It is understood to consist of three- or four-storey racks of prefabricated concrete, or steel, and the placing of cars on the racks by means of specially adapted fork-lifting trucks. The forks are inserted under the wheels of the car, and can lift the car on to a rack in 30 seconds. The forks can also lift a car back on to the ground in the same time. The works committee of Maidstone Town Council is considering plans for erecting this multi-storey garage on a riverside car park. The cost is about one-twelfth that of a multi-storey drive-in garage.

LANCS BUILDING SPEED-UP

Lancashire county authorities and the local building trade have worked out a new idea to speed up planning. Many firms are dissuaded from competing for contracts by the long time-lag between sending a tender and the decision being made known.

The county council has decided, therefore, that it is in its own interest to agree to tenderers being informed of the position on their tenders much earlier than has been the case. To this end, it is proposed to introduce arrangements whereby, generally speaking, tenderers would be informed within 7-10 days of the closing date for a particular project whether they were not in the first three, and, alternatively, whether they were in the first three when their bills would be called up in the normal way. While this is being tried out, steps will be studied to accelerate the procedure of considering tenders.



SEEN here is the largest crushing mill made in this country—by Pegsons of Coalville—in process of delivery to Beenham, one of the newest Marley Tile Company factories. It is a 225 h.p. electrically powered machine of American design, representing the most up-to-date method for sand and gravel crushing.

TRADE NEWS

CHANGES OF ADDRESS

The London offices of the British Titan Products Co., Ltd., are now at The Adelphi, John Adam Street, WC2. (Tel.: Trafalgar 4451.)

As and from December 12, Messrs. R. B. Burden, Ltd., are moving to new head offices at Cambridge-road, Kingston-on-Thames, Surrey (tel.: Kingston 9476-7-8), where they would be pleased to receive trade catalogues, etc.

COMPANY'S OFFICE EXTENSION

Another floor is being added to the offices of Wates, Ltd., contractors, of London-road, Norbury. The second floor is to be extended to cover the whole area of the floors below, and the addition will mean an extra 2,740 sq. ft. of floor space, making 19,220 sq. ft. in all.

"HEAT IN HARNESS"

A new documentary film entitled "Heat in Harness" has been produced by William Kenyon and Sons, Ltd., Dukinfield, Cheshire, to show the general importance of heat insulation and present a synthesis of modern industrial and domestic insulation as adapted to present-day requirements. Of 50 minutes duration, it deals with not only the products of the William Kenyon Group of companies but also includes the products of other insulation firms, many of which assisted in the film's production.

COMPANY RESULT

Following are brief details of a company result:—

THOMAS W. WARD, LTD.—Group profit after taxation for year ended June 30 last, £1,136,972. Final dividend of 11¼ per cent. less tax on ordinary shares to be recommended to the annual meeting (Royal Victoria Station Hotel, Sheffield, November 25).

PERSONAL COLUMN

MR. T. H. KIRKUP has been appointed a director of The Limmer & Trinidad Lake Asphalt Co., Ltd. Mr. Kirkup, who has for many years been associated with the organisation, is managing director of The Western Trinidad Lake Asphalt Co., Ltd., a subsidiary.

BUILDING ABROAD

Work by British Contractors

ALTHOUGH it has been known that, since the war, there has been a marked increase in the volume of overseas constructional work carried out abroad by British contractors, hitherto no comprehensive statistical information has been available about the extent of these overseas activities or of the impressive contribution being made by contractors in this way to the country's export drive, states an article in *The Board of Trade Journal*.

One of the first acts of the Advisory Council on Overseas Construction, which was set up by the Board of Trade in 1954, was to draw attention to the lack of information covering the whole range of overseas work carried out by British contractors, and to urge that steps should be taken to fill this gap by collecting and publishing statistics of the value of overseas constructional contracts obtained and work done by British firms. With the co-operation of the Export Group for the Constructional Industries and of the individual firms of contractors engaged on constructional work overseas, information has been obtained, covering the year ending March 1955, on the value of work done overseas by some 50 firms operating in nearly 60 different countries. Data have also been provided on the value of contracts obtained over the same period, and the value of work still outstanding.

The value of work done during the period was over £70 million, while the value of orders obtained was almost £75 million. At the end of March, 1955, £70 million of building and civil engineering work was still outstanding. This work represents a substantial addition to the total activity of the industry: in 1954 the output of new building and civil engineering work carried out in this country was over £1,100 million and the overseas work therefore represents an additional 6 per cent. The figures shown here relate only to the work done by British contractors operating from this country and by associated or subsidiary companies in which the predominant interest is British.

The firms undertake a very large variety of jobs. Nearly all types of buildings have been erected during the year in some part of the world, ranging from houses and schools to buildings for entertainment and to factories. In many places there has been a demand for new office buildings and hospitals, and British contractors have competed successfully for these contracts. The range of civil engineering work undertaken overseas is as wide as the range in this country: among the contracts undertaken have been harbour, road and bridging work, hydro electric schemes, oil refineries, railways, sewage schemes and airfields.

The amount of work done overseas varies considerably among the 50 firms concerned. About a third did less than £250,000 each last year, whereas 13 did over £1 million, including seven which did more than £3 million. The part played by overseas activities in the total activity of the firms also varies, ranging from as little as 1 per cent. of the work done in this country to well above the output at home. For many of the big contractors overseas activities represent about an equal share with the work done at home.

As the following table shows, the major part of the work was carried out in the sterling area.

£ million

Area	Value of contracts obtained in year ended March 31, 1955	Value of work done in year ended March 31, 1955	Value of work outstanding at March 31, 1955
Sterling ...	57.5	65.5	57.5
Dollar ...	6.8	2.4	4.3
Non-sterling O.E.E.C. countries	9.3	1.6	7.7
Other non-sterling	1.1	0.4	0.8
Total ...	74.7	69.9	70.3

OPENINGS IN CANADA

Competition in Canada has been described as "desperately keen" and Canadian and United States contractors enjoy obvious organizational advantages. Nevertheless, it has been reported that the value of industrial and engineering contracts obtained in the first six months of this year was about 50 per cent. above last year, and the figures suggest that British contractors may be getting a growing share of constructional work. Moreover, capital investment in construction in Canada is likely to increase, although apparently more in the building than in the civil engineering field, and British contractors may be able to get more work, therefore, in the future.

In Western Europe and Turkey, however, work valued at only about £2 million was done in the period, but contracts to the value of about £11 million were obtained, and nearly £9 million of work still remained to be done at the end of March. This is very satisfactory. A substantial part of the work to be done is in Turkey, which probably offers further scope.

As might be expected, Commonwealth countries provided the biggest opportunity, and indeed they contributed over 70 per cent. of the work done and of the work outstanding. Nevertheless, the opportunities outside the Commonwealth, particularly in the Middle East, should be considerable, and some increase in the £5 million of work obtained there last year must therefore be looked for.

BURMA'S BIG PROGRAMME

The value of contracts obtained in the Far East, chiefly in Burma, appears to be increasing. The Board of Trade Mission to Burma reported that the country's development plans appeared to be the most ambitious in the Far East. Schemes for development expenditure amount to over £500 million, and, in view of the limited engineering resources of Burma itself and the Union Government's declared intention of sending out projects to international tenders, there should be considerable scope for British contractors.

At the

Batsford Bookshop

you are invited to inspect one of the most comprehensive stocks to be found of English and foreign books on Modern Architecture and Building Construction.

Catalogue available on request

15, North Audley St., London, W.1

OVERSEAS BUILDING

[From Our Own Correspondents]

BELGIUM.—The Belgian Minister of Public Works has outlined a road construction programme for the years 1955-57. In addition to a large number of improvements to state primary and secondary roads, the principal items in this programme are as follows: the commencement of the Antwerp-Liege-Germany auto-route including the north section of the Antwerp ring road between the auto-route and the port; various improvements and additions to the Brussels road system in preparation for the 1958 world exhibition; the continuation of the Brussels-Antwerp auto-route; the section of the projected auto-route from Brussels to Namur between Notre Dame-au-Bois, on the outskirts of Brussels, and Wavre.

HOLLAND.—It has been reported that the Mayor and Aldermen of Rotterdam are planning to submit to the Town Council a project for the building of a new tunnel under the Maas for the use of the town's tram connections. The commission to work out the technical plans for this tunnel have been entrusted to the architectural and engineering experts of the Town Council.

A more remote project is to replace the present bridges by two additional tunnels to accelerate the railway connection between the two sides of the river. A fourth tunnel is also contemplated to facilitate passenger and car traffic in view of the fact that the existing Maas tunnel is expected to become overburdened by the year 1960.

INDIA.—Under the Transport Ministry's scheme for the development of highways, ports and shipping during India's second five-year plan, which has been approved in the main by the Planning Commission, about 9,000 to 10,000 miles of national highways and state roads and a number of secondary roads are to be constructed. The scheme also includes the modernisation and expansion of several ports, and its overall cost is estimated at Rs. 3,500m.

UK TRADE CORRESPONDENT, NEWFOUNDLAND

The Board of Trade has appointed Mr. H. T. Renouf as United Kingdom Trade Correspondent in Newfoundland, to replace

Miss W. Caldwell, MBE, who has retired. Mr. Renouf's address is: Newfoundland Board of Trade, Water-street, St. John's, Newfoundland.

ROAD AND BRIDGE, GOLD COAST

*The following is a summary of an extract from the "Gold Coast Gazette" dated October 29:—

The Government of the Gold Coast invites tenders for the construction of approximately 10 miles of road including bridging, culvert and ancillary works between Jasikan and Kadjebi.

The form of tender and a copy of the bills of quantities, contract documents and drawings may be obtained on the payment of a deposit of £10 from Head Office, Public Works Department, Christiansborg-road, Accra.

Tenders must be deposited in the Office of the Secretary of the Central Tender Board, Room 10, Ministry of Finance, Accra, not later than December 10, 1955.

Further information from : Export Services Branch, BoT, Lacon House, Theobald's-road, WC1. Telephone inquiries to Chancery 4411, ext. 738 or 771, quoting ref.: ESB/26343/55.

CATALOGUES FOR INDIA

*The United Kingdom Trade Commissioner at New Delhi has reported the desire of the four regional Small Industries Service Institutes, recently established by the Government of India to assist in the development of small industries, to receive catalogues from UK firms.

Catalogues which include the following types of machinery and equipment are required: woodworking machinery; foundry equipment; presses; wireworking machinery; plastic working machinery; chain making machinery; paint and varnish making plant; glass works plant; pottery making machinery; concrete block making machinery; tile making machinery; brush making machinery; marble cutting, grinding and polishing machinery.

Catalogues should be addressed to : 1. Mr. P. Govinda Menon, Director, Small Industries Service Institute, 23-A, Nungampakkam High-road, Madras-6, India. 2. Mr. K. S. Roychowdhury, Director, Small Industries Service Institute, 16, Theatre-road, Calcutta-16, India. 3. Mr. R. U. Patel, Director, Small Industries Service Institute, Elphinstone Building, 10, Veer Nariman-road, Fort, Bombay-1, India. 4. Mr. P. L. Sehgal, Director, Small Industries Service Institute, 56, Sundar Nagar, New Delhi, India.

Please quote reference ESB/17315/55 in any correspondence with the Export Services Branch about this notice. (Tel.: Chancery 4411, ext. 360).

ROAD CONSTRUCTION

*The following is a summary of an announcement issued in the "Gold Coast Gazette":—

The Government of the Gold Coast invites tenders for the construction of approximately 19 miles of road from the Shai Hills to Kpong.

The form of tender and a copy of bills of quantities, contract documents and drawings may be obtained on the payment of a deposit of £10 from the office of Sir William Halcrow and Partners, MMICE, Rowe-road, Accra.

Tenders and bills of quantities must be deposited in the office of the Secretary of the Central Tender Board, Room 10, Ministry of Finance, Accra, Gold Coast, not later than December 10, 1955.

Further information from: Export Services Branch, BoT, Lacon House, Theobald's-road, WC1. Telephone inquiries to: Chancery 4411, ext. 738 or 771, quoting ref.: ESB/24344/55.

PREFABRICATED HOUSES INQUIRY

*Twenty-six prefabricated aluminium (portable) frameless houses are required by the Director General of Supplies and Disposals, Government of India, Shahjahan-road, New Delhi, India. (Tender No. SBI/4714-F/111).

The closing date for the receipt of tenders is November 25, 1955. Further details and a set of tender documents may be obtained from the Export Services Branch, BoT, Lacon House, Theobald's-road, WC1. Telephone inquiries to: Chancery 4411, ext. 738 or 771, quoting ref : ESB/22097/55.

NEW CAIRO HOTEL

The American Engineering Bureau, Becket and Associates, have been appointed to design and furnish the Nile Hilton Hotel (of which a model was illustrated in our issue of October 7) which is to be built in Cairo on the Nile near the Kasr-el-Nil Bridge. Two Egyptian engineers, Dr. William Selim Henna and Mr. Mohamed Riad, have been appointed to assist the American engineers.

This new hotel will have 14 floors and will be air-conditioned. It will be about 200 ft. high and will have a 430-ft. long façade fronting the Nile embankment. The building and furnishings will cost approximately £E2m. Foundation work started in June, and it is expected that the hotel will be ready to receive tourists in the summer of 1957. The Egyptian State Tourist Administration is supporting the construction of this building as well as a number of other new hotels.

THE ORGANISATION OF BUILDING FIRMS

A series of articles, contributed by leading Builders in various parts of Great Britain, on the organisation of the medium-sized builders' business. Reprinted from "The Builder."

Price 2/6 ; By post, 2/9

Book Dept.,
The Builder House,
Catherine Street, W.C.2
Tel.: TEMple Bar 6251 (Ext. 5)

*From the Board of Trade Special Register Information Service.

The SCOTTISH BUILDER

Glasgow Bridge Proposal

GLASGOW Corporation Highways Committee on November 7 appointed a subcommittee to inquire into the possibility of building a Bailey bridge across the River Clyde to help relieve traffic congestion in the city.

The convener, CLLR. W. M. LEE, said the site would probably be between Stockwell Bridge and the Suspension Bridge, near the city centre. Speed of erection was the main feature of the project, and, if approved, the bridge could be ready for use within a year.

He said the cost would be about £200,000. The bridge would be 24 ft. wide and would carry vehicular traffic only. There would be three spans on concrete piers and the structure would be between 300 and 400 ft. long.

Ravenscraig Steelworks Progress

CONSTRUCTION of the new Ravenscraig steelworks of Colvilles, Ltd., is ahead of schedule. Work began a year ago on this £20m. project, which is designed to produce 350,000 tons of pig-iron and 400,000 tons of steel a year; completion is expected in the later part of 1957. Site preparation was expected to take 20 months; about 4,500,000 tons of material, from sand to heavy clay, had to be moved, and progress was rated at about 240,000 tons per month on shovel operation and 100,000 tons on scrapers. Despite the bad winter, the very fine summer months of this year permitted excellent progress, and completion is now expected by March, 1956, some 16 months after starting, in place of the allocated 20 months.

Edinburgh Multi-Storey Housing

EDINBURGH CORPORATION has approved the erection of two multi-storey blocks at Ferry Road-drive; they will be each ten storeys and will together include 120 flats, 40 of two apartments and 80 of three apartments. Average cost will be £2,104 per flat, which includes underfloor electric heating. This decision is in keeping with the policy adopted in the city of utilising existing sites by building upwards.

Glasgow Firm's Product for Canada

UNDER the presidency of Mr. John Lawrence, head of the Glasgow building firm of that name, a new company known as Atlantic Gypsum, Ltd., is to take over the processing of gypsum rock deposits in Newfoundland. The Rt. Hon. Joseph R. Smallwood, Prime Minister of Newfoundland announcing the transaction at a Press conference in Glasgow on October 25, forecast a tremendous future for the company's new product, Bellrock gypsum boarding, as a building product for use throughout the whole of Canada.

Aberdeen Development Plan

THE Secretary of State has appointed Mr. J. J. Cunningham, QC, to hold a public local inquiry in Aberdeen on January 16 next

SCOTTISH BUILDING TRADE WAGES

FOLLOWING are rates of wages authorised by the Scottish National Joint Council as from April 18, 1955. They apply to the whole of Scotland, including the islands of Orkney, Shetland, etc.

Grade A: Craftsmen, 4s.; Labourers, 3s. 5½d.

For apprentices, the rates are:

Year.	Percentage of Craftsman's rate.	For week of 44 hours.
		s. d.
1st	25	44 0
2nd	33⅓	58 8
3rd	50	88 0
4th	66⅔	117 4
5th	75	132 0

For female labour, the rates are:

	s. d.
Operatives on craft operations (at end of probationary period)	3 5½
Operatives on labouring operations (at end of probationary period)	3 2

into the objections which have been lodged against the proposals contained in the City of Aberdeen Development Plan.

NEW BUILDINGS

Aberdeen.—Plans are in hand for development scheme of 350 houses. Architect, J. Austen Bent (A), 15, Palmerston-pl., Westend, Edinburgh.

Dunbartonshire.—Plans are in hand for clinic at Drumchapel site (est. cost, £80,000). Plans by the Architectural and Planning Dept. of Glasgow, Municipal-bldgs., George-sq., Glasgow.

Glasgow.—Plans are in hand for scheme of 48 houses in flats at Kilacnan-rd. and Kilbey-ter. Architect, J. Austin Bent (A), 15, Palmerston-pl., Westend, Edinburgh.

Glasgow.—Plans have been approved for Odeon Theatres, Ltd., 39, New Oxford-st., London, for additions and alterations at cinema at Renfield-st. Architects, Alexander Macinnes Gardner & Ptnrs., 223, West George-st., Glasgow.

Glasgow.—Plans have been approved for scheme of houses at the Brenfield housing site. Architect, Archibald G. Jury (F), Housing Offices, Glasgow Cross, Glasgow.

Glasgow.—Corporation has under consideration a scheme estimated at £120,000 for new Eastend baths and washhouses at the junction of Green and Stevenston-sts. Plans by the Architectural and Planning Department, Municipal-bldgs., George-sq., Glasgow.

Glasgow.—Plans are in the hands of their own architectural staff at Alexandria-parade, Dennistoun, for new buildings at Nanson-st. for the Imperial Tobacco Co., Ltd., East-st., Bedminster, Bristol.

Glasgow.—Plans have been approved for the Archdiocese of Glasgow, Park-circus, Woodlands-rd., for Catholic church at Donlochy-rd. Architects, Reginald Fairlie & Ptnrs (FA), 7, Ainslie-pl., Westend, Edinburgh.

Glasgow.—Plans have been prepared for J. & W. Tennant & Co., Ltd., brewers, Dennistoun, for extensions and additions. Architect, Thomas S. Cordiner (A), Blythswood-chbrs., West George-st., Glasgow.

Inverness-shire.—Plans are in hand for housing scheme at Drumnadrochit, etc. Council A, Alexander Cullon (F), Inverness Castle, Inverness.

Lochwinnoch (Renfrewshire).—Plans are in hand for 50 houses. Council A, James M. Murray (F), County Planning and Architectural Offices, Glasgow-rd., Paisley.

Lanarkshire.—Plans prepared by their architects, have been approved for new buildings at the Newhouse Industrial Estate for the Scottish Industrial Estates, Ltd., 3, Woodside-pl., Glasgow.

Lanarkshire.—Plans have been approved for the East Kilbride Development Corporation for new public buildings, roads, etc., at the Globe housing site. Architect, Frank G. Scott (L), Torrence House, East Kilbride.

Lanarkshire.—Plans have been approved for development of the Odston/Millhouse housing scheme, Hamilton (100 houses). Council A, Robert D. Wyler (A), Municipal-bldgs., Hamilton.

Renfrewshire.—Plans are in hand for scheme of 50 houses at Neilston housing site. Council A, James M. Murray (F), Master of Works Offices, Planning Dept., Glasgow-rd., Paisley.

The Builder FUTURE CONSTRUCTION

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

NOVEMBER 21.

*†**Littlehampton UDC.**—Eight houses, Manning-rd., Wickbourne estate. E&S. Dep. £2 2s.

NOVEMBER 22.

*†**Wimbledon BC.**—Six flats at 56/66, Plough-la. BE&S, Town Hall. Dep. £2 2s.

NOVEMBER 23.

*†**Coventry Corp.**—126 dwellings at Henley Green estate. C. F. Redgrave & Ptnrs., architects, 6, The Quadrant, Coventry. Dep. £2 2s. Tenders by December 17.

NOVEMBER 24.

*†**North East Metropolitan Regional Hospital Board.**—Extension to Physiotherapy Dept. at Hackney Hospital (est. cost £13,000). Secretary to the Board, 11a, Portland-pl., W1.

NOVEMBER 25.

*†**West Riding CC.**—Pair of houses, Yorkshire Institute of Agriculture, Askham Bryan. County A, "Bishopgarth," Westfield-rd., Wakefield. Dep. £2 2s. Tenders December 19.

*†**Wolverhampton CB.**—Home for aged persons and 16 bungalows at Showell Circus. BE, Town Hall. Dep. £2 2s.

NOVEMBER 26.

*†**Essex CC.**—Schoolkeepers' houses at Kenningtons and Bonnygate county primary schools, Ockendon. County A, Chelmsford.

*†**Oldbury BC.**—101 houses, Cakemore estate, Part 3. BS, Municipal Bank-chbrs., Birmingham-st. Dep. £3 3s. Tenders by December 30.

*†**West Sussex CC.**—Primary school, Tilgate, Crawley, County A, Chichester.

NOVEMBER 28.

*†**Chigwell UDC.**—Conversion of "Guy's Retreat," Buckhurst Hill, into 18 small flats. Tooley & Foster, architects, Midland Bank-chbrs., Buckhurst Hill, Essex.

*†**Crawley Development Corporation.**—721 dwellings; 98 flats and 91 garages. Chief A, Broadfield, Crawley.

*†**Essex CC.**—Extensions to Mid-Essex Technical College and Joseph Barrett Secondary School, Walthamstow. County A, Chelmsford.

*†**Somerset CC.**—Additional classrooms, Worle Secondary Modern School, Weston-super-Mare. County A, Taunton. Dep. £2 2s.

*†**Southampton CB.**—Repairs of war damage to Civic Centre. Boro' A. Tenders by January 2.

NOVEMBER 29.

*†**Hornsey BC.**—31 dwellings and 31 garages at Southwood-la. BE&S, Town Hall. Tenders by January 26.

"POLY"
P.V.C. FLOORING
in sheet or tiles
The new low-priced flooring!
RESILIENT
NON-STRETCH
HARD-WEARING
Supplied in 23 attractive Marbled Colours
EDWARD STUART & CO.
8 HOLBEIN PLACE,
LONDON S.W.1 *Tel: SLOane 4065/4021*
Also: CORK TILE, WOOD BLOCK, THERMO-PLASTIC and other FLOORINGS

NOVEMBER 30.

*†**Cornwall CC.**—Secondary school, Hayle. Deputy County A, Truro. Dep. £5 5s. Tenders by January 10.

*†**Durham CC.**—Renewal of floors and pointing of walls at High Felling Mod. Sch.; erection of branch library at Blackhall Colliery; erection of branch library at Merton Colliery. County A, South-st.

*†**Norfolk EC.**—Erection of (a) Watton Sec. Mod. Sch. with head teacher's house and caretaker's bungalow; (b) three classrooms at Fakenham Gram. Sch.; (c) branch library (prefabricated) at North Walsham. Chief Ed. Officer, Stracey-rd., Norwich.

*†**Salop CC.**—Applications invited from building contractors to be put on approved list for erection of schools. County A, Column House, London-rd., Shrewsbury.

DECEMBER 1.

***Brighton, Hove and Sussex Grammar School Joint E.C.**—Craft room extension, Old Shoreham-rd., Hove. BE&S, 26/30, King's-rd., Brighton. Dep. £2 2s.

*†**Essex CC and Trustees, Ursuline Convent, Brentwood.**—Junior dept. of R.C. prim. sch., at Harold Hill, Romford. Scholes and Raymond, architects, 79, Elvetham-rd., Fleet, Hants.

***Glasgow Corp.**—Several works for 42 flats, Mosesfield-st. Architectural and Planning Dept., 20, Trongate.

DECEMBER 2.

*†**Hants CC.**—Erection of Alton County Junior Sch. County A, Winchester.

DECEMBER 3.

*†**West Sussex CC.**—Sec. mod. sch., Kingston-la., Southwick. County A, Chichester.

DECEMBER 5.

*†**East Suffolk CC.**—Extensions to Leiston Grammar School and Eye County Modern School. County A, Ipswich. Tenders by January 9.

***Guildford RDC.**—20 dwellings at The Rough, West Horsley. Contract No. 1. E&S, Millmead House. Dep. £2 2s.

*†**Peterborough Joint Education Board.**—Proposed Eastholm County School for Girls, Eastfield estate. L. H. Robjohn, S to the Board. Dep. £5 5s. Tenders by January 30.

DECEMBER 6.

***Bletchley UDC.**—134 houses at Rivers estate. E&S, Council Offices. Dep. £5

***Chertsey UDC.**—Alterations and additions to Nos. 3 and 4, Rusbury Cottages, Lyne Crossing-rd. E&S, Council Offices. Dep. £1 1s.

DECEMBER 7.

***Harrow BC.**—Conveniences, Chapel-la., Pinner. BE&S, 48, Uxbridge-rd., Stanmore. Dep. £2.

***Stourbridge BC.**—71 houses, Wollaston Farm estate. BE&S. Dep. £3 3s.

DECEMBER 8.

***Glasgow Corp.**—Several works in connection with the erection of 48 single persons' flats at Barlia-st. Architectural and Planning Dept., 20, Trongate.

DECEMBER 9.

***Gravesend BC.**—68 houses, Valley-dr. BE&S, 6, Woodville-ter. Dep. £2 2s.

***Great Yarmouth CB.**—40 bungalows, 15 garages and 6 houses and a sub depot building. BE. Dep. £2 2s.

DECEMBER 12.

***Macclesfield BC.**—Nine flats, Fence-ave. Boro' A, 3, Jordangate. Dep. £2 2s.

*†**Swansea CB.**—New infants' sch. at Trallwn. Boro' A, The Guildhall. Dep. £5.

DECEMBER 14.

***Barrow-in-Furness CB.**—75 houses and 20 flats, North Walney estate. BE&S. Dep. £2 2s.

***Montgomery CC.**—Six houses and 5 sets of farm buildings and repairs, etc., to other buildings, Bank Farm, Pool Quay, Welshpool. County A, Welshpool. Dep. £5 5s.

DECEMBER 15.

***North Riding EC.**—New county mod. sch. at Brotton, nr. Saltburn-by-the-Sea. Hadfield, Cawkwell & Davidson, architects, 1, High-court, Sheffield. 1.

DECEMBER 16.

***Bexley BC.**—84 houses, Halcot No. 3 estate. BE, West Lodge, Broadway, Bexley. Dep. £5 5s.

DECEMBER 19.

***Erith BC.**—72 flats, Hurst-pl., Abbey Wood, SE2. BE&S. Dep. £2 2s.

DECEMBER 21.

***Barrow-in-Furness CB.**—Alterations and extensions to County Grammar Sch. for Girls. BE&S, Town Hall. Dep. £2 2s.

DECEMBER 31.

***West Riding CC.**—List of contractors for major building works. County A, "Bishopgarth," Westfield-rd., Wakefield.

JANUARY 6.

***Oldham CB.**—New buildings. Glodwick-rd. A. Millward, Director of Public Cleansing, Gas-st. Dep. £5 5s.

NO DATE.

***New Malden, Surrey.**—R.C. sec. mod. sch. for 330 boys, Manor-dr. North. W. C. Mangan, architect, 2, Ribblesdale-pl., Preston.

PAINTING, MATERIALS, ETC.

NOVEMBER 30.

***†Harrow BC.**—Lists of painting contractors. D. H. Pritchard, TC.

DECEMBER 6.

***Chertsey UDC.**—Installation of boilers in council houses. E&S.

DECEMBER 13.

***Luton BC.**—Heating and hot water installation at Luton Sec. Tech. Sch., New Bedford-rd. BE, Town Hall. Dep. £2 2s.

MUNICIPAL AND CIVIL ENGINEERING WORKS, ETC.

DECEMBER 5.

Peterborough City C.—Laying and jointing of 2,200 lin. yds. of 15-in. spun-iron pipes with flexible joints. Pipes, etc., to be supplied by corporation. City and Water E. Dep. £2 2s.

Romford BC.—12,000 sq. yds. concrete carriageway, sewering, kerbing, paving, fencing, lighting and incidental works in two parts at Lodge-la. housing estate. BE. Dep. £2 2s.

DECEMBER 6.

Bletchley UDC.—Advance preparation of housing sites at Rivers estate (part) comprising 5,500 lin. yds. sewers and drains, 8,000 super yds. concrete carriageway, etc. E&S. Dep. £5.

DECEMBER 7.

East Dean RDC.—1,600 lin. yds. 6-in. and 9-in. dia. concrete and stoneware sewers, pumping station, sewage disposal works and incidental work at Blakeney. Lemon & Blizzard, Cons. Engrs., Lansdown House, Castle-la., Southampton. Dep. £2 2s.

DECEMBER 12.

Edeyrnion RDC.—1,000 yds. 12-in. dia. cast-iron pipes and 400 yds. asbestos-cement pipes, reconstruction of concrete dam, excavation of silt at impounding reservoir, and other headworks; also alterations to filter house, construction of sludge lagoons and incidental works, 2¼ miles from Cynwyd, nr. Corwen, Merioneth. Richards & Dumbleton, council's cons. engrs., 45, Newhall-st., Birmingham, 3. Dep. £5.

DECEMBER 13.

Lee Conservancy Catchment Board.—Construction of two concrete-lined channels, 55 ft. and 5 ft. 6 in. in width respectively, involving 54,000 cu. yds. excavation and 5,700 cu. yds. mass concrete; surface and subsoil drainage, fencing and other appurtenant works. N. Medrington, AMICE, MIWE, Engr. to the Board, The Grange, Crossbrook-st., Cheshunt, Herts. Dep. £5.

DECEMBER 16.

East Shropshire.—4,000 lin. yds. 3-in. and 4-in. dia. asbestos-cement water mains, pumping station and elevated water tank, with incidental works, at Sambrook. A: H. S. Waters & Ptnrs., Engrs., 25, Temple-row, Birmingham, 2. Dep. £3 3s.

DECEMBER 29.

Taf Fechan Water Supply Board.—Laying of two miles of 24-in. dia. steel main from Pontsarn to Williamstown, nr. Merthyr Tydfil, including cross-connections to existing 30-in. dia. main, a pipe crossing of the river Taff and ancillary works. Binnie, Deacon & Gourley, engrs., Artillery-row, SW1. Dep. £10.

GENERAL BUILDING WORK

(LONDON)

Beckenham.—MULTI-STOREY FLATS.—A scheme is being prepared by BE for the erection of up to 120 council flats on an "island" site on the periphery of the Cator estate, fronting Southend-rd. between the temporary bungalow site and Stumps Hill-la. BE is also preparing a scheme for this bungalow site, which will hold 36 flats in five blocks. The total area of the sites is about eight acres.

Dagenham.—LICENSED PREMISES.—Proposals have been made by Charrington Co., Ltd., for the erection of licensed premises at High-rd./Whalebone-la. North.

Greenwich.—REDEVELOPMENT.—The acquisition for housing purposes of a 12-acre site in Czar-st., lying between Hughes Fields and Trinity estates and the Sayes-ct. open space, has been proposed by LCC Hsg. Com. The estimated cost of its acquisition, clearance and partial redevelopment would be £149,000. About 345 dwellings could be erected on the site.

Hendon.—FLATS.—Detailed plans have been submitted by BE&S relating to the development of housing site No. 40, The Fairway, NW7, by the erection of one three-storey block of 12 flats and two four-storey blocks of four flats each. TP Com. have given their approval.

Hendon.—GARAGE AND WORKSHOPS.—TP outline approval has been given to proposals by Stevens, Scanlan & Co., architects, 56, Buckingham Gate, SW1, for the rebuilding of a garage and workshops and the provision of an additional storey at Hirsts Garage, Armitage-rd., NW11.

Hendon.—FLATS AND HOUSES.—MH&LG approval has been given to proposals by BC for the erection of 168 flats and 16 houses at Housing site No. 2, Claremont-rd., NW2. Hsg. Com recommend that BC approve drawings submitted by BE&S and prepared by John Laing & Son, Ltd., showing the elevations of the proposed dwellings.

Paddington.—OLD PEOPLE'S FLATS.—Preliminary sketch plans have been prepared by L. Drake & D. Lasdun, A/FRIBA, 63, Gloucester-pl., W1, for the erection of 24 old people's dwellings on the Hallfield estate in place of, and approximately on the site of, the proposed forum for shops and licensed premises, to the north of the county primary school. TP Com. recommend that MBC give their approval to the proposal.

Richmond.—DAUGHTER CHURCH.—A daughter church to Holy Trinity, Roehampton, is to be erected near Mount Clare and the Clarence Gate of Richmond Park, the site having already been secured by the Diocese. A building sub-committee has been set up by the Parochial Church Council to obtain details of current design. Vicar, Canon W. C. Campling.

South Bank.—OFFICES.—LCC has approved a height of 338 ft. for the tower block of the "sky-scraper" offices which the Shell Petroleum Co. proposes to build on the South Bank site. Oblong in shape, the tower will be 25 storeys high and form a central feature of a group of offices occupying three sides of a square. The lower wings of the building will generally be of 10 storeys, ranging in height from 142 ft. to 148 ft. The premises will be the company's main international headquarters and will accommodate staff now in about 20 offices in London. The scheme is being prepared by Sir Howard Robertson, ARA, PP.RIBA, 53, Bedford-sq., WC1. The company is also leasing an adjoining site for a second office block. These offices will accord in height with the lower wings of the main group.

St. Marylebone.—OFFICES.—Plans have been prepared by Beard, Bennett and Wilkins for the erection of "contemporary"-style shops and offices with 33 flats above in a seven-storey block on the sites of Nos. 7-17, Baker-st., 51-65, George-st., and 26-31, Portman-cl. The project has been approved by BC and LCC authorities.

St. Marylebone.—QUANTITY SURVEYORS.—Hsg. Com. recommend that Smith and Bowl, 115, Ebury-st., SW1, be re-engaged by MBC for the third and final phase (Pembroke-ter.) of the Queens-ter. development scheme.

St. Marylebone.—OFFICES AND FLATS.—Marks and Spencer, Ltd., 82, Baker-st., W1, have appealed to MH&LG against LCC's refusal to permit redevelopment of the site of No. 1, Dorset-st. by the erection of a four-storey office building and a six-storey block of nine flats. BC have raised no objection to the proposals in principle subject to conditions. Inquiry is to be held at the Town Hall on December 13.

(PROVINCIAL)

Abingdon.—RDC is to ask MoH & LG to sanction borrowing of £500,000 for housing purposes during next six months.—20 additional houses to be erected at Poplar-gr., Kennington, for hutted camp replacements.

Alnwick.—UDC decided to build flats and shops in Greensfield-ave. by contract. S: G. Beaty.

Aspull.—UDC seek loan £23,369 for 18 houses at Hilton site.

Belfast.—Two-storey building with church above and parish hall below is proposed at Rathcoole. A: Denis O'D. Hanna (L), 22, Howard-st. £16,000 est.

Berwick.—J. Van Smirren, Ltd., fish canners, propose extensions to their factory on Tweedside trading estate.

Berwick.—J. and J. Fairnington, bldrs., Branxton, are planning erection of houses on three acres of land at Springhill. Inquiry held.

Berwick.—C. S. Errington, 46, Grainger-st., Newcastle-on-Tyne, is architect for proposed showrooms at Castlegate for H. Moat & Sons, Ltd., bldrs.' merchts., Rutherford-st., Newcastle-on-Tyne.

Berwick.—Berwick Corporation Freemen Trustees announce that £15,000 will be needed to complete restoration work at Berwick Town Hall. Ministry of Works has offered grant of £7,500.

Birkenhead.—The Birkenhead School proposes erection of new laboratory at Bidston-rd. A: Morter & Doble (F), 11, Rumford-st., Liverpool, 2.

Birmingham.—EC recommend purchase of site at junction of Aston-rd./Digby-st. for first instalment of proposed School of Printing.

Blyth (Northumberland).—Boro' E prepared plans for erection of 24 houses in Newsham-rd. Tenders being obtained.

Bolton.—EC to invite tenders for Block A of Hayward Cty. Sec. Sch.

Bradford.—BC proposes following in 1956 programme: New fire station at Idle, £32,600 est.; garages, workshops, stores and lecture room at Central Fire Station, £16,500 est.; new occupation centre at junction Lister-ave./Bowling Hall-rd.

Bristol.—Outline planning permission to John Bryant & Co. for 150 Cotswold-style houses at Riverwood estate, adjoining Frenchay Common.—Housing and Public Health Com. also approved layout scheme for five small factories at 12-acre site in Tower-rd. North, Warmley, the property of Haskins, Ltd., of Warmley.

Burnley.—TC proposes adaptations to town hall basement, £30,000 est.

Caister-on-Sea.—Flegg Licensing Justices approved plans for rebuilding Manor House Hotel, destroyed by coast-erosion, for E. Lacon & Co. A: A. W. Ecclestone (L), The Brewery, Great Yarmouth.

Chatham.—Licensing Justices approved plans for rebuilding Duke of Wellington inn, Magpie Hall-rd., for Truman, Hanbury & Buxton. A: Harold Anderson (F), 27, Watling-st., Canterbury.

Cheshire.—MoH & LG has accepted scheme for building of 4,000 houses at Hattersley, in Hyde Boro' and Longendale UD; 1,000 at Mottram, Longendale; 800 at Handforth, Wilmslow; and 850 at Carrbrook, Stalybridge, in connection with Manchester and Salford's overspill housing schemes.

Chesterfield.—TC to sell sites on Mickley estate to C. of E. Authorities for erection of new church, and to Derbyshire CC for erection of new school. Schemes for further 150 houses at Old Whittington estate and 16 bungalows and common room at Pevensey estate, Newbold, to proceed.

Chesterfield.—RDC approved plans for offices, laboratories and plant at Mill-la., Wingerworth, for British Coke Research Assn., and for development of housing estate on land off Queen Victoria-rd., Tufton: 8 houses at Eckington, 8 at Sheepcote Hill, Killamarsh, 8 at Westfield-cres., Mosbro', 6 at All pits Farm, Calow, proposed.

Church.—UDC to appoint new contractor to carry on erection of 14 houses at Riding Barn estate.

Colne Valley.—UDC to invite tenders for improvements to municipal offices, £10,467 est.

Coventry.—TC proposes reinstatement of Primrose Hill slipper baths.—Godiva Fireplaces, Ltd., 32, Earl-st., propose new premises at Union-st.

Cramlington (Northumberland).—National Coal Board (N. and C. Area), Cramlington, to spend £22,000 on improvements to 55 colliery houses at Cramlington.

Cumberland.—Tenders being obtained by EC for proposed alterations and additions to Shankhill Voluntary Controlled Sch. Plans by County A.

Cumberland.—Cumberland and Westmorland Spastic Society has acquired Irton Hall for conversion into residental school for 45 spastic children.

Darlaston.—UDC received further allocation of 62 houses.

Doncaster.—BC appointed F. Gibberd, CBE, MTPI (F), 8, Percy-st., London, W1, as architect for proposed new civic centre.

Durham.—CC has appointed Cordingley & McIntyre (F), The College, Durham, architects, and R. H. Duns, Lambton House, Lambton-rd., Newcastle-on-Tyne, QS, for proposed Durham Technical College (2nd stage).

Durham.—Tenders being invited for erection of new premises for West Rainton Workmen's Club. A: J. M. Angus (L), 21, Lovaine-la., Newcastle-on-Tyne.

Durham.—City C received approval from County Planning Officer for crematorium est. to cost £50,000. City E.—The County C to build new fire stations at Crook and Hetton at cost of £50,000 and planning to spend £50,000 a year for next six years on fire stations. County A.—EC approved expenditure of £15,000 on adaptations at Billingham College for Further Education.

Eccles.—R.C. Diocesan Trustees, Cathedral House, Chapel-st., Salford, propose erection of new R.C. sec. sch. at Guilford-rd.—Plans approved for steel-framed building for storage of foundry materials at Barton Hall Engine Works, Gorton-st., for L. Gardner & Sons, Ltd.

Felling-on-Tyne.—UDC's five years' programme of 374 houses has been approved. Housing A.

Hebburn-on-Tyne.—UDC Planning Com. approved layout plan by S for about 200 houses in Elmfield-rd. area.

L.M.B.A.
HANDBOOK
1955

A limited number of copies of the L.M.B.A. Handbook is still available. They cost **7/6** net and may be obtained from the offices of "The Builder" or from the address below.

LONDON MASTER BUILDERS' ASSOCIATION
47, Bedford Square, W.C.1

Hemel Hempstead.—MoH & LG authorised RDC to invite tender for 10 non-parlour type houses at Chipperfield. Plans by E&S.

Hereford.—City C to borrow £33,424 for provision of attested cattle shedding at the cattle market, to acquire for housing purposes 27 acres of land at west side of Holm-la. and 19 acres at southern end of Holm-la.—By-law and TP approval to C. E. T. Booth for development of housing site at Ledbury-rd. for Developments (Hereford), Ltd.

Hinckley.—Following planning appeal, George Cooper & Sons are to erect 12 more houses and six bungalows on their housing estate at Three Pots.

Huddersfield.—New fire station to be built at site south of Upperhead-row bus station. £100,000 est.

Jarrow-on-Tyne.—TC approved revised plans for new premises in Perth-ave. for Jarrow Gasworkers' Club.

Kettering.—C. of E. Authorities propose erection of new church and church hall at Grange estate, £12,000 est.

Kidderminster.—TC approved plans for factory and offices at Stourport-rd. for National Standard Co., Ltd.

Kirkburton.—UDC approved erection of 24 houses at Flockton.

Kirkham.—Lancs CC proposes erection of aged persons' home at Millbank estate.

Lancaster.—TC approved in principle scheme for joint crematorium with Morecambe TC. £62,000 est.

Lancs.—CC seek loan £12,449 for erection of new farm houses.

Leamington Spa.—County fire brigade headquarters on derelict Beach Lawn site and automatic telephone exchange on slum-clearance area in Johnst. are proposed by TC.

Leeds.—TC to invite tenders for hostel for blind persons on Moortown estate.—Approved plans of showrooms at Roseville-rd. for Appleyard of Leeds, Ltd.

Leigh.—Lancs EC proposes extensions and alterations at Technical College, £27,875 est.

Liverpool.—New Church of Holy Rosary, Aintree-la., Old-rd., for RC Authorities. A: Weightman & Bullen (F), Liverpool.

Lytham St. Annes.—BC approved plans: Five detached bungalows at corner of St. David's-rd. South and St. Thomas-rd. for W. Eccles & Sons; 8 bungalows at Kilnhouse-la. for P. S. Uttley, Ltd.; extension at rear of Convent of Helpers of the Holy Souls, Links Gate, for Rev. Mother, E. Walsh.

Macclesfield.—TC received approval in principle for erection of new crematorium.

Maidenhead.—Outline approval given by Development and Planning Com. for 30 flats on three floors at junction Belmont Park-rd./Courthouse-rd., and 6 pairs s.d. houses in Summerleaze-rd.—TP permission for new office block in Oldfield-rd. for Widney Manufacturing Co.

Manchester.—TC approved plans: Communal hall and classrooms to synagogue at Wilbraham-rd., Fallowfield, for the South Manchester Hebrew Congregation. A: Peter Cummings (F), 16, Oxford-st.; alterations and extensions to warehouse at 31-33, Church-st. for Church Street Property Co., Ltd. A: B. Waterhouse (F), 134, Deansgate; new vehicle-washing bay at Briscoe-la., Newton Heath, for CWS, Ltd. Plans by own A.—The Stanweld Engineering Co., Ltd., propose new factory and offices at Floats-rd. and Shady-la., Roundthorn Industrial Area, Wythenshawe. A: J. W. Beaumont & Sons (F), 51, Mosley-st., Manchester.

Mansfield.—TC proposes erection of 24 flats at Ladybrook-la.

Matlock.—UDC approved plans: Multiple store, staff and stock rooms at Causeway-la. for F. W. Woolworth, Ltd.; new hotel adjoining Hooleys Estate, Darley Dale, for Offilers Brewery Co., Ltd.

Middlesbrough.—North Riding Territorial Association will consider building of headquarters at Middlesbrough to serve units of that town, and also units of Stockton, Thornaby and Billingham.

Middlesex.—Children's Com. propose new nursery at The Fairway, Mill Hill (£40,000 est.), additional accommodation at Holtwhites Hill nursery (£3,100), two children's homes at Maygoods Farm estate, Cowley (£10,000), one at Northolt Park estate (£5,000) and two pairs s.d. staff houses at Pishiobury approved school (£10,775) in building programme for 1956-7.

Morecambe.—Imperial Hotel, Regent-st., destroyed by fire in 1949, is to be rebuilt at cost est. at £60,000-£70,000 for owners, Peter Walkers (Warrington), Ltd., Bolton. Work expected to start in March, 1956.

Morpeth.—Work expected to start next spring on building of new admission block and two convalescent wards at St. George's Hospital. Cost £300,000. A: P. H. Knighton (A).

Morpeth.—Extensions for 50 to 60 new beds proposed at Thomas Taylor Home, £73,000 est. County A, County Hall, Newcastle.

Newcastle-on-Tyne.—City C to be asked to approve expenditure of £10,000 on developments to Ouseburn Stadium plan. Further £25,000 is likely to be spent on another stage of scheme next year. City E.

Newcastle-on-Tyne.—Plans approved: Warehouse in Blenheim-st., for C. L. Handa. A: Dryden & Shaw, Market-st.: 60 one-bedroomed flats at St. Michael's-rd., for HC, City A; additions to Kenton Lodge Tech. Col. A, S. N. Slipper (L), Education Offices, Northumberland-rd.; two sub-stations at Kenton, for North-Eastern Electricity Board, 80, Jesmond-rd.; alterations and extensions to motor showrooms in Thornley-rd., for Hawkins & Co. A: Newcombe & Newcombe (F), Eldon-sq., Newcastle.

Newcastle-on-Tyne.—New Presbyterian Church proposed on Montague estate.—204 flats and maisonettes in five-storey blocks in Scotswood-rd. City A.

North Riding.—CC to convert premises at Thirsk into library. County Education A, County Hall, Northallerton.

Northumberland.—CC proposes £10,000 child welfare centre at Shiremoor, and scheme has been approved in principle.—Plans submitted to Ministry for proposed old people's home at Blyth. Architect: A. Child, 25, New Bridge-st., Newcastle-on-Tyne.

Norton.—RDC proposes 4 bungalows, 2 houses and 1 shop at Staxton and 4 bungalows at Scagglethorpe.

Notts.—EC received Ministry approval for inclusion of following schools in 1956/7 programme: Bramcote Sec. Mod., £144,574 est.; stage 2 of Beeston College of Further Education; first instalment of Bingham Sec. Mod.; completion of Calverton Prim., £19,349 est.; Calverton Sec. Mod., £110,535 est.; completion of Carlton Gelding Sec. Mod., £48,096 est.; Mansfield Sec. Tech., £161,455 est.; Mansfield R.C. Sec., £93,456 est.; phase 3 of Mansfield College of Further Education; Newark New Barnby-rd. Prim., £32,186 est.; Newark Sconce Hills Sec. Mod. completion, £57,500 est.; Ruddington Cty. Sec., £98,736 est.; Selston Matthew Holland Sec. Mod., completion, £43,500 est.; Tuxford Sec. Mod., £110,535 est.; and Worksop Sec. Mod., £103,301 est.

Nuneaton.—TC approved plans of factories at Weddington-rd. for Abbott Hosiery Co., Ltd., and for J. V. Finn, Ltd.

Oswestry.—MoW proposes erection of new telephone exchange facing Welsh Walls, £67,000. Work to commence next August.

Preston.—Atkinson Vehicles, Ltd., propose extensions to factory at Winery-la., Walton-le-Dale.

Reading.—TC received consent to borrowing £233,269 for erection of Westwood Girls' Sch.

Richmond (Yorks).—RDC to convert Swale House into offices and tenders being obtained. Plans by S.

Richmond (Yorks).—200 houses in Cutpurse-la. Boro' E.

Rochdale.—Scheme for 16 bungalows at War Office-rd. for L. Barnett approved in outline.—TP approval for erection of 34 houses at War Office-rd., for W. Rhodes, Ltd.—By-law and TP approval for new hotel at junction Ings-la.-Rooley Moor-rd., for Rochdale and Manor Brewery, Ltd.

Rotherham.—G. Bilton & Sons, Ltd., Clifton-ter., propose erection of 70 houses at Listerdale.

Runcorn.—RDC approved plans for conversion of Daresbury Hall as residential home and training centre for National Spastics Society.

Sheffield.—EC to make the following architectural appointments:—Myers Grove I Sec. Sch., Hadfield. Cawkwell & Davidson (F/A), Sheffield; Jordangate II Sec. Sch., Lyons Israel & Ellis (A), London; Waltheof Sec. Sch., The Architects' Co-Partnership, London; first instalment of extensions at College of Art, Mr. Donald Bradshaw (F), Liverpool; School for Spastics, Gollins, Melvin, Ward & Ptnrs. (F/A), London.

Skelton and Brotton (Yorks).—UDC has offered sites for 50 houses at New Skelton housing estate for private building, and 25 have been taken up.—MH&LG has approved 15 houses at same estate, for UDC.

Skipton.—RDC proposes erection of 4 bungalows for aged persons at Bradley and 10 houses and 8 flats on Beanlands estate, Glusburn.

South Shields.—TC approved plans for rebuilding of north side of bombed market place. Scheme includes block of property for National Assistance Board, new offices for the Sunderland and South Shields Water Co., shops and public-house.

Southport.—TC to invite tenders for extensions at Canning-rd. transport depot.

Stanley (Durham).—W. B. Reid & Co., Ltd., The Leazes, Upper Claremont, Newcastle-on-Tyne, to build inn at Durham-rd., South Stanley. A: Percy L. Browne & Son & Harding (F), Pearl-bldgs., Northumberland-st., Newcastle-on-Tyne.

Stockton-on-Tees.—Flowers Transport Co., Ltd., to erect premises on Dog Hill Farm Estate.—TC is seeking loan sanction for £6,527 for proposed water mains west of Fairfield-rd. and £89,461 for water mains on the new Hardwick housing estate.—Stephenson & Gillis, Saville-chbrs., North-st., Newcastle-on Tyne, have prepared plans for showrooms, garage, etc., at The Square, for Murray & Charleton, Ltd.—Head Wrightson & Co., Ltd., Teesdale Ironworks, Thornaby, to erect pattern shop in Tynedale-st.—G. P. Stainsby, 57, High-st., Stockton-on-Tees, has prepared plans for 14 houses at Autumngr., for A. E. Gray & Sons, Ltd., bldrs., Chapel-st., Thornaby; two blocks of terrace houses in Colchester-rd., for J. Tennet, bldr., 17, Prince Regent-st., Stockton, and layout plans for houses near Green Beck estate, for Moorhouse & Barker, Ltd., bldrs. and contrs., Thornaby-rd., Thornaby-on-Tees.—Moorhouse & Barker also propose housing developments near Bishopton-rd. West, and at Lonesome Hall Farm.

Sunderland.—By-law and TP approval granted to: D. & S. Ranken, Ltd., bldrs., extension to machine shop at Lisburn-ter., Pallion, for T. S. Forster & Sons, Ltd.—R. E. Coleman, Ltd., alterations to shipyard at Pallion for Short Bros., Ltd.—J. Seymour Harris & Ptnrs. (F), AMTPI, Edgbaston, Birmingham, shops and offices at 202-5, High-st. West, for Ruislip Development Co., Ltd.—G. T. Brown & Son (F), 53, Fawcett-st., Sunderland, 2 pairs s.d. houses and garages at sites Nos. 65-68, Road "D," Humbledon Hill estate for Stewart Bros.

Swindon.—Development of new shopping parade to follow line of old canal from Melton-rd. bridge to Wellington-st. is expected to start early next year. Several firms have submitted plans to TC for large stores and cinema may also be included. Plans with MH&LG.—Schemes for redevelopment at back of Bridge-st. and parts of Holbrook-st. and Cheltenham-st. submitted to CC.

Torpoint (Cornwall).—RDC approved scheme for 24 two-bedroomed houses at Queen's Park estate, £36,000 est.

Towcester.—RDC to build houses at following sites in 1956 programme: Gayton 4, Maidford 2, Blisworth 12, Wappenham 4, Stoke Bruerne 8, Potterspury 2, Whittlebury 6, Wicken 2, and to carrying out site works at Pattishall and Yardley Gobion, preparatory to the erection of houses in 1957.

Tweedmouth (Northumberland).—CC negotiating for 40 acres of land for new sec. sch. County A, Newcastle.

Tyldesley.—UDC approved plans for development of site at Chaddock-la., Boothstown, as plant depot and dispersal unit for Thom, Ltd.

Wallasey.—BC to negotiate with J. L. Rawsthorpe & Co., Manor-rd., Woolston, for further 49 dwellings on site south of Twickenham-drive.

Ware.—Tenders to be invited for 34 more houses on Cromwell-rd. estate for UDC.

West Bromwich.—BC appointed Richard Sheppard & Ptnrs. (F), London, as architects for new day special school.

West Hartlepool.—Boro' A to proceed with sketch plans for two groups of 18 flats for old people.

West Hartlepool.—B. W. Turnbull & Ptnrs. (F), 29, Ludgate-hill, EC4, are architects for proposed alterations and additions to Longhill Works of Batchelor, Robinson & Co., Ltd., detinners.—Expanded Metal Co., Ltd., to extend their works in Greatham-st., and have prepared own plans.—R. Rennie & Sons, builders, Regent-sq., Hartlepool, propose 26 houses at Haswell-ave.

Wigton.—North-Eastern Housing Assn., Curzon House, Maryport, to erect 50 houses at Western Bank.

Yarmouth.—Yarmouth Port and Haven Commissioners have approved scheme for rebuilding Gorleston pier, £367,500 est.

BROUGHTON MOOR

Light Sea Green and Olive Green Stone

An all British Product from the Lake District Mountains

The following pamphlets are available on request

No 1. FLOORING · No 2. FACINGS · No 3. COPING
No 4. CILLS · No 5. RIVEN FACE SLABS

THE BROUGHTON MOOR GREEN SLATE QUARRIES LTD

CONISTON, LANCS. Tel: CONISTON 225

TENDERS

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government Departments.*

Aberdeen.—New infants' school at Corthan-cres., Kingorth, new Kingorth Protestant prim. and Middle sec. schs. A: J. A. O. Allen, Ross & Allen (F), 10, Bon Accord-sq., Gt. Western-rd. Principal contrs.: *William J. Anderson, Ltd., Balmoral-rd., £11,856; *S. B. Russell & Sons, Ltd., 10, Affleet-st., £26,984; *Adam Birnie & Co., Ltd., 10, Claremont-st., £14,788; *Hendry & Keith, Ltd., 21, Gilcomston-pk. (joinery, etc.), £12,129.

Barrow-in-Furness.—Erection of superstructure of pumpwell, etc. at Salthouse Flood Prevention Scheme, for BC: *Direct labour, £14,455.—Licensed premises, Friars-la., for C. & S. Brewery, Ltd.: *J. Leck & Son, Hindpool-rd., Barrow-in-Furness.

Bedford.—20 bungalows at Queen's-dr., Putnoe estate, for TC. BE&S, F. W. Dawkes, BSc, AMICE, MIMunE., Newnham House, Horne-la. Quantities by BE: *J. & B. Sanderson, 17, Cauldwell-st., Bedford. £24,447.

Bedford.—Following works at Putnoe estate, for TC: 50 houses, *William J. Bushby, Ltd., £76,813; 32 houses, *Gambriel & Sugars, Ltd., £47,423; 11 houses at Turnpike-way, *Collins & Harris, £16,700.

Birmingham.—New premises at Slade-rd., Erdington, for H. Bryan & Son, motor tractors: *H. F. C. Spencer, Sutton-rd., Erdington, Birmingham.

Burnley.—New bus depot, for Ribble Motor Services, Ltd., Frenchwood-ave., Preston: *Building*, *Thomas Croft & Sons, Ltd., Blackpool-rd., Preston. *Steelwork*, *Thomas Blackburn & Sons, Ltd., Sellars-st., Preston.

Carlisle.—Works, for City C: 34 houses on Morton estate, *Direct labour, £41,584; City Hall conversion scheme, *G. C. Robertson, Carlisle, £10,802.

Carlisle.—108 houses and 42 aged persons' flats and bungalows, Morton-rd., and 4 shops and flats, Harraby, for City C. City E&S, 18, Fisher-st.: Morton estate, contract No. 3 (108 houses), *J. Laing & Son, Ltd., Dalston-rd., Carlisle. £126,677; Morton No. 4 (42 dwellings), *J. Laing & Son, Ltd., Carlisle, £36,515; Harraby estate, contract No. 54 (4 shops and flats), *H. Cartner & Son, Newby Cross, Carlisle, £16,403.

Carlisle.—68 houses on Morton estate, for City C. City E. L. J. A. Stow, 18, Fisher-st.: *Direct labour (34 houses); *John Laing & Sons, Dalston-rd., Carlisle (34 houses).

Congleton.—80 houses at Buglawton estate, for TC: *J. J. Yearsley, Parnelscroft Park-la., Congleton. £80,246.

Coventry.—111 dwellings at Willenhall Neighbourhood Unit, for TC: *S. J. Smith & Co. (Bidford), Ltd., Charford estate, Bromsgrove, £132,660; 13 dwellings at Hall's Farm estate, Stoke Aldermoor: *F. Bratby & Sons, 44, Mellowdew-rd., Wyken, £22,391. House/teaching block, etc., at Caludon Castle sec. sch., for EC: *Thomas Bates, Ltd., 53, Warwick-st., Coventry, £58,461.

Crawley Development Corpn.—801 dwellings, Tilgate, Stage I. Chief A: H. S. Howgrave-Graham, ARIBA, AMTPI, Broadfield. Quantities by Gardiner & Theobald: *Carlton Contractors, Ltd., Lingfield-cres., Rochester Way, Eltham, S.E.9, £1,373,880.

Cuckfield.—Eight dwellings, Hanlye-la., for RDC. E&S, A. Hutchings, MBE, MIMunE: *Saunders (Contractors), Ltd., London-rd., Burgess Hill, Sussex, £11,868.

Cuckfield.—Six garages and 4 bungalows, Barn Close, Pease Pottage, for RDC. E&S, A. Hutchings, MBE, MIMunE: *Beamish (Builders), Ltd., 123, Gardner-rd., Portslade, Sussex, £4,081.

Darlington.—C of E school (600 places), for Boro' EC: *Edgar Lawson, Ltd., Darlington.

Doncaster.—Three-storey block of flats, Cantley estate (Stage Va), for BC: *J. S. Pott, 6, Church-la., Bessacarr. £29,580.

Eastbourne.—52 houses at Ocklynge Farm estate, section 3, for CBC. Boro' E: R. Williams, BSc, 2/4, Saffrons-rd., Eastbourne. Quantities by R. Williams: *W. Llewellyn & Sons, Ltd., Cornfield-ter., Eastbourne, £70,182.

Edinburgh.—Extensions and additions, etc., to medical buildings at George-sq. for the Board of Governors. A: W. N. W. Ramsay (F), 11, Park-circus, Woodlands-rd., Charing Cross, Glasgow, WC3. QS: Reid & Gibson, FSI, 9, Melville-st., Westend, Edinburgh. Principal contrs.: *Redpath, Brown & Co., Ltd., Wellington-chbrs., Waterloo-st., Glasgow, WC2; and *Charles Macandrews & Co., Ltd., 11, West End pl., Edinburgh.

Farnworth, Lancs.—Following at Plodder-la. South No. 2 site, for TC: 54 houses, *E. F. Davies, Ltd., Bank-st., Farnworth; 20 houses, *E. S. Street, Ltd., Bolton-rd. Works, Kearsley, Farnworth.

Fifeshire.—Reconstruction and addition to premises of John Collier, Ltd.: *Colin Hunter & Co., Ltd., 170, Great Western-rd., St. George's Cross, Glasgow, WC3.

Glasgow.—Various housing schemes, for City C. £2,000,000 est. A: Archibald G. Jury (F), Housing Offices, Glasgow Cross, The Trongate, Glasgow, EC1: *Scottish Construction Co., Ltd., Sighthill Industrial Estate, Edinburgh; *Direct Labour; *Robert W. Stewart & Co., Ltd., 16, St. Enoch-sq., Glasgow, C1.

Halesowen.—Factory for Mirroware (J. Lewis & Co.), 249, Edgware-rd., London, W2: *A. H. Farmer & Sons, Ltd., Halesowen, £100,000.

Hazel Grove and Bramhall.—Two blocks of 12 dwellings, each block comprising 6 maisonettes and 6 flats, Newtown-st. slum-clearance scheme, for UDC: *Vessey, Ltd., Marple, Cheshire, £27,900 (extension of contract).

Hendon.—One block of 12 and two blocks of 4 flats at the Fairway, Mill Hill, for BC: †Gregory Housing, Ltd., £27,044.

Hinckley.—Following at Waterfall estate, Barwell, for UDC: 12 two-bedroom flats, *A. W. Clay, The Bungalow, Hinckley-rd., Barwell, Hinckley, £14,136; 8 houses and 12 one-bedroom flats, *Topp & Crofts, 13, Southfield-rd., Hinckley, £22,450.

Hyde.—37 houses at Grange-rd. estate, for TC: *Vessey, Ltd., Marple, £57,811.

Kilmarnock.—100 houses at Bellfield estate. A: Neil S. Sutherland (F), QS: W. H. MacColl, AMICA, Municipal-bldgs., Kilmarnock. General contractors: *James Miller & Ptnrs., Ltd., Rosebank House, Camelon-rd., Falkirk, Stirlingshire, £122,200.

¶London (Air Ministry).—Contracts to the value of £500 or over for the week ended November 12:—*Building work*: G. and J. Seddon, Ltd., Little Hulton, Walkden, Manchester; Thomas Lowe & Sons, Ltd., Broadway-chbrs., W6. *Erection of timber screen*: Mitchell and Struthers, 60, John Finnie-st., Kilmarnock, Ayrshire. *Building work*: James and Crockerell, Ltd., Durrington, Salisbury. *Artificers' work*: Robert Scase & Son, Ltd., 151, Ewell-rd., Surbiton, Surrey; Y. J. Lovell & Son, Ltd., 17, Easton-st., High Wycombe, Bucks; C. Jenner & Son, Ltd., 5/9, Bouverie-st., East Folkestone, Kent. *Installation work*: The Brightside H. and En. Co., Ltd., 17, Summer-row, Birmingham 3.

London (Knightsbridge).—Ten-storey office and showroom building on the site of Tattersalls Arch, Brompton-rd., to plans by W. J. Biggs (Stone, Toms & Ptnrs.): *Sir Robert McAlpine & Sons, Ltd.

London (MoW).—Contracts placed for week ending November 5:—*Angus (Forfar)*: PO, TE and TRS, Willison-st., Dundee, erection of superstructure, *Charles Gray (Bldrs.), Ltd., 4, Francis-st., Coldside, Dundee. *Berkshire:* Broadmoor Institution, Crowthorne, demolition and rebuilding part of boundary walls, *Crosby & Co., Ltd., Lion Works, Farnham, Surrey. *Hampshire:* RAE, Farnborough, work for project "E" (alteration to E hangar), *Lavender McMillan (Contrs.), Ltd., 54, Cheam Common-rd., Worcester Park, Surrey. *London:* Admiralty, South Block, Whitehall, SW, internal decorations, *South London Decorators, Ltd., 9, Streatham High-rd., SW16; Government Offices, Gt. George-st., SW1, internal decorations, *Sykes & Son, Ltd., 8, Essex-st., Strand, WC2. *Norfolk:* Happisburgh, erection of one pair of semi-detached coastguard houses, *Toolev & Youngs, High-st., Stalham, Norfolk. *Warwickshire:* Stratford-on-Avon, erection of new Crown buildings, *Espley & Co., Ltd., 77, High-st., Evesham. *Worcestershire:* MOS, RRE, Leigh Sinton-rd., Malvern, erection of new copper-forming shop, *Espley & Co., Ltd., 77, High-st., Evesham. *Yorkshire:* MPNI and NAB, Gledhill-rd., Bradford, erection of new Crown offices, *F. Shepherd & Son, Ltd., Blue Bridge-la., York.

¶London (War Dept.).—Works contracts placed in week ended November 5.—*Berkshire*: Building work, *Frank Batty & Smith, Ltd., London, W2. *Cumberland*: Building work, *Brown Fraser & Co., Ltd., Longtown. *Glamorgan*: Miscellaneous, *Richard Pearce & Sons, Neath. *Hampshire*: Painting and decorating, *Fields, Ltd., Reading. *Kent*: Building work, *W. E Cox (Sheerness), Ltd., Sheerness; building work, *George Stone (Folkestone), Ltd., Folkestone). *Leicestershire*: Building work, *Adkins & Shaw (Builders and Contractors), Ltd., Daventry. *Perthshire*: Building work, *Conoboy & O'Brien (Builders), Ltd., Stirling. *Roxburghshire*: Roadwork, *Stark & Dobbie, Glasgow. *Shropshire*: Heating installation, *J. B. Jackson & Ptnrs., Ltd., London. *Wiltshire*: Building work, *Downing, Rudman & Bent, Ltd., Chippenham. *Yorkshire*: Concrete roadwork, *W. & J. Glossop, Ltd., York.

Manchester.—Almshouses, 9 bungalows and 2-storey block of 6 flats at Every-st., for Charities of Mayes, Hartley and Sutton: *Vessey, Ltd., Marple, £24,568.

Middlesbrough.—55 houses at Pallister Park, for TC: †C. W. Athey, Windsor-rd., Middlesbrough.

Mitcham.—Block of 9 flats, block of 4 cottage flats and one terrace of 4 houses at Pitcairn-rd., for BC. BE&S, Town Hall: *M. Howard (Mitcham), Ltd., 10, Riverside-dr., Mitcham, £32,955.

Newcastle-on-Tyne.—18 police houses at Walker estate, for City C. City A: George Kenyon, 18, Cloth Market: *Whittal Builders Co., Ltd., 95, Pilgrim-st., £30,339.

Newcastle-on-Tyne.—106 houses at Kenton North estate, for City C. City A: *John Twiname, Ltd., Brigham, Cockermouth, £151,719.

Nottingham.—32 houses, south side of Squires-ave., Bulwell, for TC: *G. A. Pillatt & Son, Ltd., Quorn-rd., Haydn-rd., Nottingham, £50,625; 2-storey building to form library and shops at Mansfield-rd., for TC: *G. A. Pillatt & Son, Ltd., £26,436.

Oxford.—New block of buildings at Nuffield College. Harrison, Barnes & Hubbard, architects: *Benfield & Moxley, Ltd., Oxford. (Cost over £200,000.)

Port Glasgow.—50 two-storey cottage houses at Park Farm development site, for City C. Council A: Ian M. MacColl (F), Port Glasgow. General contractors: *Blackburn (Dumbarton), Ltd., Levenbank Contracting Works, Jameston, Alexandria, Vale of Leven, Dumbartonshire.

Radcliffe-on-Trent.—New Cty. Sec. Sch., for Notts EC: *W. J. Simms, Sons & Cooke, Ltd., Haydn-rd., Nottingham, £105,570.

Renfrewshire.—Barrhead's new hotel for Glenacre B. Co., Ltd., 44, West George-st., Glasgow. A: J. & D. L. Baird (F), 6, Gilmour-st., County-sq., Paisley. QS: Wilkinson & Lowe, 21, Woodlands-gdns., Charing Cross, Glasgow. General contractors: *Dickson & Smith & Co., Ltd., Chapelfield Contracting Works, Barrhead.

Richmond (Yorks).—56 houses, for RDC: *George Wimpey & Co., Ltd., Orchard House, Newcastle-on-Tyne.

Sheffield.—Following, for Regional Hospital Board: New out-patients' department at Johnson Hospital, Spalding: *E. E. Cracknell, 8, Thrapstone-rd., Brampton, £15,412. Extensions to maternity unit at Ashbyde-la-Zouch & District Hospital: *Arthur G. Clower, Ltd., Mansfield-rd., Davbrook, Nottingham, £14,425. 27 houses and 1 doctor's surgery and flats at Gleadless Valley site, for TC: *T. V. Simpson, Sheffield, £42,894. Passenger shelters at Pond-st. 'bus station, for TC: *Hv. Boot & Sons (Reema), Ltd., Sheffield, £32,130. Alterations to existing loading platforms: *Direct labour, £17,870. Erection of Abbeydale grammar sch. for boys, for EC: *W. Redmile & Sons, Ltd., Sheffield, £222,030. Chaucer sec. sch.: *Ackroyd & Abbott, Ltd., Sheffield, £193,572.

Shrewsbury.—Licensed premises, "The Coracle" at Sundorne-rd., for Trouncer & Co., Ltd.: *J. Bromley & Sons, 74, Watling-st., Church Stretton, Salop.

Spennymoor.—30 houses at Byers Green, for UDC. A: G. H. Gray & Ptnrs. (F), Camden-st., North Shields: *W. Vetti (Builders), Ltd., 22, Foyle-st., Sunderland.

Spennymoor.—Middlestone Moor sewerage and sewage disposal works. S: W. J. Marley, Town Hall: *G. M. Pearson & Son, Front-st., Hetton, £62,170.

St. Marylebone.—14 flats at site of Nos. 22-30, Balcombe-st., NW1, for MBC: *C. Pitt & Son, Ltd., 94-96, Eversholt-st., NW1, £31,675.

Sunderland.—Extensions to platers' and welders' sheds at South Dock Shipyard of Bartram & Sons: *North-East Metal Fabrications, Ltd., Sheepfolds, Sunderland.

Sunderland.—Platers' shed at Pallion Shipyard, for Short Brothers, Ltd.: *Brims & Co., Ltd., City-rd., Newcastle-on-Tyne.

Sunderland.—151 houses on Farringdon estate, for TC. Boro' A: H. C. Bishop, Grange House, Stockton-rd.: *L. W Evans (Contractors), Ltd., Norfolk-st.

Taunton.—Works at Priorswood, for BC: 28 houses, *Carsin (Bristol), Ltd., £40,530; 10 houses, *F. & E. Small, Taunton, £15,740.

Tyldesley.—Blocks of four one-bedroomed flats, for UDC: *G. & J. Seddon, Ltd., Little Hulton, £17,179.

Warwick.—New council chamber and three-storey extension to County Offices at Old-sq. County A: *Forster & Dicksee, Ltd., James-st., Rugby, £124,751.

Wellingborough.—Further 100 houses at Northampton-rd. estate, for UDC. E&S: R. Kilby, Council Offices, Swanspool: *F. & R. Windsor, Ltd., Rushden, Northants, £140,639.

EVERY
CONTRACTOR KNOWS
Beachcroft Partitions
STAND THE TEST OF TIME
ARCHITECTS
SPECIFY
BEACHCROFT CELLULAR
BLOCKS
Harrow Road, Leytonstone, E.11
TELEPHONE:
MARYLAND 4747 (2 LINES)

West Bromwich.—Houses, for BC: 70 at Roundabouts estate, *Direct labour, £94,166; 43 at Yew Tree estate, *Direct labour, £56,298; 34 at Tanhouse estate, *Sir Alfred McAlpine & Sons, Ltd., £59,128; 18 at Bowstoke-rd., *Selleck Nicholls & Co., Ltd., St. Austell, £26,293.

West Hartlepool.—New hotel in Catcote-rd., for J. W. Cameron & Co., Ltd., Lion Brewery, West Hartlepool. Plans by firm's A: *Direct labour.

Wokingham.—29 Cornish unit houses at Penn Fields estate, Ruscombe, for RDC: *Selleck Nicholls & Co., Ltd., £37,017.

Wolverhampton.—232 dwellings at Dale-st. redevelopment area, for BC: *A. F. R. Godfrey & Co., Ltd., 36, Waterloo-rd., Wolverhampton.

Wrexham.—Erection of (a) 24 dwellings at Garden-rd.; (b) 26 dwelling at Tanydre, for BC. BE&S: J. M. Davies, MIMunE. 31, Chester-st.: *Martin Evans, Cambrian-yard, Bridge-st., Wrexham, (a) £24,465; (b) £24,597. (Subject to Ministry approval.)

NEW COMPANIES

THE FOLLOWING NEW COMPANIES, registered in England, have been announced by Jordan and Sons, Ltd., company registration agents.

William Weller & Son, Ltd. (554907.) Regd. September 21, 1955. 49, Chapel-rd., Worthing, Sussex. Mnfrs. of and dlrs. in sectional bldgs., etc. Nom. cap.: £3,000. Dir.: Harriet Weller.

A. Cox & Son, Ltd. (554812.) Regd. September 20, 1955. 88, Thaxted-rd., Saffron Walden, Essex. Bldrs. and decorators. Nom. cap.: £1,000. Dir.: A. H. Cox.

Beadon Contracting Co., Ltd. (554818.) Regd. September 20, 1955. 13, Harley-st., W1. Earth-moving and demolition contrs., site clearers, bldrs., etc. Nom. cap.: £100. Dir.: C. J. Brooks.

Middletons (Scunthorpe), Ltd. (554837.) Regd. September 20, 1955. 105, High-st., Scotter, Lincs. Painting contrs. Nom. cap.: £4,000. Dir.: C. B. Middleton.

George Blades & Sons, Ltd. (554875.) Regd. September 21, 1955. Tall Timbers, Hull-rd., York. Bldrs., contrs., etc. Nom. cap.: £2,000. Dir.: G. Blades.

Ian Williams & Co., Ltd. (554879.) Regd. September 21, 1955. Ely Paint Works, Wroughton-pl., Ely, Cardiff. Painting contrs. Nom. cap.: £25,000. Permt. dir.: I. W. Williams.

Pontremoli, Ltd. (554890.) Regd. September 21, 1955. Decorators, bldrs., etc. Nom. cap.: £5,000. Dirs. not named. Sub.: Mrs. B. Pontremoli, 11, Spring-st., London, W2.

L. Franchetti & Son, Ltd. (554956.) Regd. September 22, 1955. 70, Eyre-la., Sheffield. Terrazzo pavers. Nom. cap.: £3,000. Dir.: L. Franchetti.

Victor Morgan & Co., Ltd. (554944.) Regd. September 22, 1955. 62, Braemar-ave., Wimbledon Park, SW19. Bldrs., etc. Nom. cap.: £1,000. Dir.: E. V. Morgan.

McGinley & Co., Ltd. (555014.) Regd. September 23, 1955. Memorial-bldgs., 7, Cambridge-rd., Hastings. Bldrs., etc. Nom. cap.: £1,000. Dirs. not named. Sub.: A. C. H. Draper, 29, St. Matthews-gdns., St. Leonards-on-Sea.

C. A. Claxton, Ltd. (554968.) Regd. September 23, 1955. The Storehouse, Penny-st., Portsmouth. Bldg. contrs. Nom. cap.: £1,000. Dir.: C. A. Claxton.

Thermal & Acoustic Installations, Ltd. (555674.) Regd. October 7, 1955. 66, Fairfield-rd., Edmonton, N18. Bldrs. and contrs., etc. Nom. cap.: £1,000. Dir.: R. L. Vatcher.

Oxford Houses (Kidlington), Ltd. (555603.) Regd. October 6, 1955. 14, St. Giles, Oxford. Bldrs., bldg. contrs., etc. Nom. cap.: £1,000. Dir.: S. C. Leverton.

Walt. Ratcliffe, Ltd. (555412.) Regd. October 1, 1955. 4, Christopher-rd., Leeds, 6. Bldrs., etc. Nom. cap.: £2,000. Dir.: W. Ratcliffe.

D. J. Connolly (1955), Ltd. (555416.) Regd. October 1, 1955. 60, Lr. Anne-st., Liverpool. Genl. contrs., bldg. and civil engrg. contrs. and bldrs., etc. Nom. cap.: £1,000. Dir.: D. J. Connolly.

Chas. H. Dickinson & Son, Ltd. (555473.) Regd. October 4, 1955. Hookstone-drive, Harrogate. Bldrs., contrs., etc. Nom. cap.: £5,000. Dir.: C. I. Dickinson.

Ring, Wade & Padgham, Ltd. (555500.) Regd. October 4, 1955. 59, Thornhill-pl., Maidstone, Kent. Bldrs., contrs. and decorators, etc. Nom. cap.: £500. Dir.: A. F. Padgham.

W. J. Ward (Finchley), Ltd. (555513.) Regd. October 4, 1955. 12, Sandringham-gdns., Finchley, N.12. Bldrs. and decorators. Nom. cap.: £100. Dir.: W. J. A. Ward.

Henry Moore (Decorators), Ltd. (555535.) Regd. October 5, 1955. 24, Frederick-st., Liverpool. Bldg. contrs., decorators, bldrs., etc. Nom. cap.: £500. Dir.: H. Moore.

Buildahome, Ltd. (555568.) Regd. October 6, 1955. 126, Walter-rd., Swansea. Bldrs., etc. Nom. cap.: £1,000. Dir.: A. G. M. Dinan.

Leslie Dare, Ltd. (555593.) Regd. October 6, 1955. 10, Fitzroy-st., W1. To construct, erect and maintain sewers, roads, bldgs., houses, etc. Nom. cap.: £100. Dirs. not named. Subs.: J. Harrison.

FEDERATION OF MASTER BUILDERS

UNITE FOR STRENGTH

The NORTH WEST REGION *covers* **LANCASHIRE, CUMBERLAND WESTMORLAND, CHESHIRE and NORTH WALES**

Membership open to all bona fide builders and contractors

ANNUAL SUBSCRIPTION

£5 : 5 : 0

COMPREHENSIVE SERVICE OF TRADE NEWS. PROMPT AND PERSONAL ATTENTION TO ALL PROBLEMS.

Branches:

Anglesey, Bolton, Manchester, Merseyside, Mid-Cheshire, Oldham, Stockport, Stoke-on-Trent, Widnes and Runcorn, Wigan, Wirral.

THE FEDERATION OF MASTER BUILDERS
26, GT. ORMOND STREET, HOLBORN, W.C.1
Tel.: CHAncery 7583

Please send particulars of the advantages of membership to:

.....

.....

PLEASE CUT ALONG DOTTED LINES
18/11/55

WOOD BLOCK FLOORS
STEVENS & ADAMS LTD.
Victoria Works,
Point Pleasant, Wandsworth, S.W.18

IMPORTANT NEWS!
special *reveal and coursing* blocks *now standard with*
BROAD-ACHESON
CELLULAR BLOCKS
BROAD & CO LTD · PADDINGTON W.2

THE ESSEX
STEEL SCAFFOLDING Co LTD
9a HIGH BEECH ROAD
LOUGHTON · ESSEX

W & M NEGUS LTD
Building Contractors
Station Works, King James St., Southwark, S.E.1.
Telephone:— Waterloo 5474 (3 lines)

GALBRAITH
BROTHERS LIMITED
BUILDERS
CONTRACTORS
& ENGINEERS
Registered Office:
61 BARTHOLOMEW CLOSE
E.C.1
MONarch 7597-8
Works:
CRAYFORD BRIDGE
KENT
Bexleyheath 5651-4